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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

NEW YORK.—There is a steady but moderate demand for comb honey, and enough stock seems to be arriving to supply the demand. Prices remain as our previous quotations. Extracted honey is in fair demand, prices ruling from 5½¢ to 6½¢, according to the quality.

FRANCIS H. LEGGETT & Co.,
Dec. 24. Franklin and Varick Sts., New York.

CHICAGO.—The honey market is of a slow nature, with little change in price of any of the grades. Choice grades of white comb honey, 14½¢@15; good to No. 1, 13½¢@14; light amber, 12½¢@13; dark grades, including buckwheat, 10¢@12. Extracted white, 5½¢@7; amber, 5½¢@5½¢; dark, 5¢@5½¢. The scale of prices varying according to flavor, body, and package. Beeswax steady at 28.

R. A. BURNETT & Co.,
Dec. 21. 199 South Water St., Chicago, Ill.

NEW YORK.—Comb and extracted honey market quiet. Quoting same as follows: Fancy white, 15¢@16; A No. 1 white, 14¢@15; No. 1 white, 13¢@14; No. 2, 11¢@12; fancy buckwheat, 10¢@11; No. 1 buckwheat, 10¢@11; No. 2 buckwheat, 9¢@10; white clover and basswood extracted, 6½¢@7; light amber, 6¢@6½; amber and buckwheat, 5½¢@6. Beeswax—fancy, 29¢@30; good average, 27¢@28. Market quiet.

CHAS. ISRAEL & BROS.,
Dec. 23. 486-490 Canal St., New York City, N. Y.

DETROIT.—Fancy white comb honey, 15; No. 1, 14; dark and amber, 11¢@13; extracted, white, 7¢@7½; dark and amber, 5¢@6½; beeswax, 26¢@27.

M. H. HUNT & SON,
Oct. 21. Bell Branch, Mich.

SCHENECTADY.—As is usually the case, we are having a very quiet market after the holidays, but we look for greater activity soon, especially in buckwheat extracted, which is really quite scarce. No change to note in prices of comb honey.

CHAS. McCULLOCH,
1 Eagle St., Schenectady, N. Y.

SAN FRANCISCO.—Comb honey, 10¢@12½; extracted, water white, 5¢@6; light amber, 4½¢@5½; dark, 3½¢@4½. Beeswax, 26¢@28. Odd lots are about cleaned up, prices stiffening in consequence.

Dec. 17. E. H. SCHAEFFLE, Murphys, Calif.

WANTED.—Comb honey in Danz. sections. Write, stating quality and price.

THE A. I. ROOT Co., Medina, Ohio.

WANTED.—Comb honey in any quantity. Please advise what you have to offer.

EVANS & TURNER,
Town St., Cor. 4th, Columbus, Ohio.

WANTED.—Comb and extracted honey. State price, kind, and quantity.

R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Honey; car lots or otherwise. Will send man to receive when sufficient amount to justify, and pay highest market price, spot cash. Address, stating quantity, quality, and price desired at your station.

THOS. C. STANLEY & SON, Fairfield, Ill.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.

SEAVEY & FLARSHHEIM,
1318-1324 Union Avenue, Kansas City, Mo.

FOR SALE.—Fancy and No. 1 comb honey; about 2000 lbs. or more.

WM. MORRIS, Las Animas, Col.

FOR SALE.—10,000 lbs. light-amber alfalfa extracted honey in 75-lb. cans, at 5¢ a pound.

R. T. STINNETT, Mesilla Park, N. M.

FOR SALE. Extracted honey, from alfalfa, at 7¢ per pound. Send for sample.

D. S. JENKINS, Las Animas, Col.

FOR SALE.—A quantity lot of well-ripened clover honey in 60-lb. cans.

B. WALKER, Clyde, Ill.

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N. A. KNAPP, Rochester, Lorain Co., Ohio.

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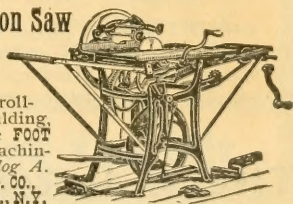
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[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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GLEANINGS

A JOURNAL DEVOTED TO BEES AND MONEY AND HOME INTERESTS.

BEE CULTURE

ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO.
\$1.00 PER YEAR MEDINA, OHIO.

VOL. XXX.

JAN. 1, 1902

No. 1.



MEDINA is the name of the postoffice of the editor of *Australian Bee-keepers' Review*—in honor of A. I. Root. [In behalf of A. I. Root, my father, I extend my most grateful acknowledgments.—ED.]

THAT REPORT on p. 976, as there said, "does not prove that the gathering was in proportion to the length of tongue." Neither does it prove that in general gathering is not in proportion to length of tongue, and especially to reach of tongue.

J. W. ROUSE says in *Progressive*: "We somewhat doubt if queen-bees can be made to hatch, at least in our climate and conditions, in less time than 15½ days." They do it here, friend Rouse. Suppose you try some eggs whose age you know for certain, have a queen reared from one of them in a full colony, and then tell us just how long it takes.

THE REPORT of the International bee convention held in Paris in 1900 is a volume of 265 octavo pages. Our own Camille took a prominent part, and had a salvo of applause upon first rising. Modestly he took that as honoring Charles Dadant, his father. [That is just like the younger Dadant; and yet how many sons of their fathers but what would have taken the honor as meant for themselves?—ED.]

THE USE of carbolineum on hives is not encouraged in *Muenchener Bienenzeitung*, on the ground that it affects the flavor of the honey. [Those who have tested the same preservative in this country have made a similar objection. About the only use we can make of it in bee culture is in applying it to bottom-boards or hive-stands. The very fact that railroad companies use it for ties goes to show that it must be a good preservative.—ED.]

THE LATEST uncapping-device recommended in foreign journals is a lamp such as gas-fitters use. It quickly melts the cap-

pings so they shrink away to the cell wall, and no cappings need be strained out of the honey. Looks worth trying. [There may be something in this. Yes, I know it would work; but would it not burn the wax, and so taint the honey? I should feel very sure it would.—ED.]

WE'VE BEEN promising ourselves great things if we could only control fertilization. Now comes Adrian Getaz, in *American Bee Journal*, indorsed by F. B. Simpson, in the *Review*, asking, "If we could breed from an individual drone of our choice, how could we tell that this drone would give better workers than that one?" [That is true; but if we could somehow control the mating of our queens so that they would meet a drone from some choice colony, the chances would be that we could improve our stock.—ED.]

S. E. MILLER says, p. 974, "The advertiser has, of course, a right to say what he likes in the space which he pays for, provided he uses no bad language." My good friend of the floury name, I hardly think you meant just that. No advertiser has a right to say what is not true. More than that, no publisher has a right to accept an advertisement, at any price, if he knows it to be untrue. [You are correct; and, however imperfectly it may have been done in the past, we attempt to carry out that rule in GLEANINGS.—ED.]

IN SPITE of some sittings-down-upon I can not entirely get rid of the idea that measuring live tongues with a glossometer may be more satisfactory than measuring dead tongues with a rule. The rule tells what a bee can do: does it tell what it will do? The glossometer tells what it will do, or, if you please, what it does do. [There may be something in this. Outward physical appearance or measurements often give a wrong impression. A man may be six feet high, and one mass of muscles, apparently, but may be no match in strength for a shorter and lighter man.—ED.]

YOU ARE RIGHT, Mr. Editor, in your defense of the mountains, p. 972, and I must confess that the credit side of their account

is the larger. We had a drouth here last summer that we couldn't fight, for no friendly mountain was nigh as a reservoir of moisture. The mountains make the drouth, but they are always ready to give back the moisture, with special advantages, as you mention. G. Stull, that brother-in-law of mine in whom your father was interested as the raiser of such fine strawberries, has gone to spend the winter in Phoenix, Ariz.; that or death, said the doctors; and it may be he will owe his life to those same mountains. My apologies herewith, Mr. Editor.

AN INTERESTING table of tongue-measurements by Prof. Gillette is given in *Am. Bee Journal*. It seems there is no fixed relation between total length of tongue and tongue reach. In one lot of blacks the total length was uniformly .24 inch, while the tongue reach, instead of being uniform, varied from .16 to .19. Bro. Doolittle, please give us tongue reach of those bees reported on p. 976. Prof. Gillette seems a bit suspicious that bees get only pollen from red clover, seeing that the tubes measured from .34 to .37, while the greatest tongue reach he found was .23. But I think there has been much reliable testimony that red-clover honey has been obtained. [See editorials elsewhere.—ED.]

SPORTS OR FREAKS among animals have also been the basis of new types, although in animal life the new type may take longer to establish than in plant life. But with the right kind of freak it doesn't require a long lifetime with any thing which produces so many generations in a season as the bee. We are told that a single freak sheep properly used produced an entirely new breed of sheep. A single freak queen ought in much less time produce a somewhat similar result. I don't believe it will take any three lifetimes, nor any three years, to make a long stride ahead, if we all keep our eyes wide open for the right kind of sports, and then make the right use of them. [See answer to another Straw in this issue.—ED.]

THAT TALL SECTION, p. 981, looks larger than the other, and it is larger—has 11 per cent more surface. Costs 11 per cent more for full foundation too. [Exactly. In one way it is larger, and in another it is not. In superficial surface or cappings of comb face, one has a larger area; in actual weight they are both the same. Now, the question is, "Would it cost any more to produce one section than another?" So far as the wood of the sections is concerned, the two are the same price. If the tall one sells for one cent more, and the foundation in it costs 11 per cent more, there is still a large gain on the credit side for the box with the large surface. Assuming that the foundation costs 11 per cent more, then it would make, as I figure it, only $\frac{1}{30}$ of one cent more; or a credit, assuming that the section brings one cent more on the market, of $\frac{2}{3}$ of a cent. Or, if it sold for two cents more in the open market, there would be a credit of $1\frac{2}{3}$ of a cent. So, taking it all in

all, the mere difference in superficial surface of the foundation doesn't cut any figure.—ED.]

THERE YOU GO again, still on a side track, Mr. Editor, p. 971. Let's get back on the main track and begin all over again. We were talking about the least that could be expected in the worst year, and I said I would be satisfied if I could be sure of at least \$1 a colony. You ask if I have data handy. Yes, my worst year was an utter failure of the crop, and a ton of granulated sugar fed. That was a good deal less than \$1 a colony. Other years I've had more than \$10 a colony, but that has nothing whatever to do with the case. Now let's keep on the main track, and say whether you think it a conservative estimate to say that in any year the yield will never be less than \$5 a colony. [Perhaps I have been on a side track. If so, I stand corrected. No, I don't think we can go so far as to say that the income in any year will never be less than \$5.00 a colony. What I had in mind was an average, taking in a period of ten or fifteen years.—ED.]

A WILD STATEMENT is going the rounds of the European bee-journals, the last one I've seen it in being *Le Rucher Belge*, a really excellent journal. In that it is said in all seriousness that Mr. Root, the well-known American bee-keeper, has succeeded in obtaining long-tongued bees of such excellence that, notwithstanding the high price at which Mr. Root sells them, \$200 apiece, he has not been able to supply the demand, and has been obliged to start an additional queen-rearing establishment in Texas to help out! Now, I wonder how many of our foreign friends will make the proper correction by saying that The A. I. Root Co. merely valued one queen (that was never offered for sale) at \$200, and never sold a queen for more than \$10.00. [It is evident that some of our friends across the water see through a glass darkly. That is to say, they have acquired only a smattering of English, and a very poor smattering at that, with the result that they do not read aright. Whew! if we could sell queens for \$200 a piece, and not supply the demand, we would go out of the supply business instantaneously.—ED.]

A CORRESPONDENT who does not court publicity is very emphatic in the belief that "whenever and wherever you find extremely light color, or more than the three bands, there is black blood every time." Unreasonable as that may look, he seems to have some proof for his belief, and I must confess that, in the early years of Italianizing, while there was a constant tendency toward black blood there was also a tendency, more or less constant, toward lighter-colored queens. [A good many have not understood why we of the Root Co. have favored the importation of queens direct from Italy, arguing that home-bred American queens were better than the inferior-looking stock from Italy. The trouble with many of our

American queens is that they have had bred into them light color, and along with it some other undesirable traits. The queens from Italy direct have a certain fixed type—a fixity that has come about through centuries of environment in the one locality—the Mediterranean on one side and the Alps on the other. I do not wish to say any thing against American home-bred queens; but I do believe that we should use as a basis, or groundwork, for our improved Italian stock, queens direct from Italy.—ED.]

YOU ASK ME, Mr. Editor, if I don't think "it sounds better to say the sun *sets* than *sits*," p. 972. Most assuredly. I am not in the habit of objecting to grammatical expressions, and "the sun *sets*" is grammatical, supported by the dictionary. I was talking about *ungrammatical* expressions. Do you know of any grammar or dictionary that will support *shook* as an adjective or a participle? Do you know of any reputable writer, outside of the case to which I objected, who has ever so used it? Honor bright, yourself. [I am well aware the present usage and the dictionaries now authorize the transitive verb *set* when applying to the sun going below the horizon; but it is ungrammatical, just the same, or at least was in the early usage of the language, for you know you can not, grammatically speaking, *set* down in a chair, but you may *sit*. The point I tried to make was, that if you were going to reform what is strictly ungrammatical you ought to make war on those words and phrases that have crept into our language that are not grammatical, strictly speaking, but which are now accepted as good usage.—ED.]

C. P. DADANT gives this bright reply to those who say section honey is manufactured by machinery: "If it were machine-made it would be all alike. There might be a dozen different patterns, but all made by the same pattern would be *exactly* alike. Now compare any number of sections; look at the position of the different pop-holes and other irregularities, and you will find that, like the leaves on a tree, although there is a general resemblance no two will ever be found exactly alike. Until you can find at least two sections exactly alike, please give the bees credit for their handiwork." [This is a good point. It is an unanswerable argument showing that comb honey is not manufactured, as has been so persistently stated in the newspapers. If dies *could* be made at all for molding the faces of the comb, they would be so very expensive that probably not more than one or two die-faces could be afforded; and yet, as Dadant says, no two sections will ever be found exactly alike. Some may be similar, but just enough different to show that it is bee work and not man work. I suggest that those of our friends who are engaged in refuting these lies that are now being circulated broadcast use this argument of Mr. Dadant's, as well as the other argument of a \$1000 reward for a single sample

of manufactured comb honey that can not be detected from the genuine. These two would afford good proof.—ED.]

RATHER DISCOURAGING is the outlook for improvement according to what is said p. 974. It is true that some improvements have required generations, as mentioned. But there's another side. *Some* of the improvements have been compassed in a year. Within 12 miles of here lives a man who lately gave \$1750 for a single carnation plant. It is hardly likely that a lifetime was spent on that plant. Agrippina is a rose of low growth. One day Rev. James Sprunt found a branch of an agrippina shooting away above the rest. That's about all the time it took him to produce a new climbing rose, the James Sprunt. One day a white rose was found growing on a branch of the pink rose Catharine Mermet, and from this sport, as it is called, was at once established the beautiful white rose the Bride. Many other new varieties have come from sports. [You are right. The case of an insect and that of an animal, so far as the element of time is concerned, is not alike. Of queen-bees we may be able to get several generations in a season; of cattle, for example, not more than one in a year. Then it is true that a "sport" sometimes will reach away in beyond the characteristics of the parent stock.—ED.]

E. E. HASTY, in his delightful department in the *American Bee Journal*, "The Afterthought," seems much pleased with Mr. A. D. D. Wood's "infallible" plan of queen introduction, as follows: Remove the old queen, take out of the cage all the attendant workers, "and lift a frame from the hive and put into the cage from 15 to 20 *young* bees from one hour to one day old, being doubly sure there are no old bees put into the cage. Remove the cork or cardboard, and in 24 to 48 hours the queen will be liberated and laying." It will also work with any colony that has been queenless not more than four days. [I believe there is a good deal in this. That man Hasty always did have an eye for the practical. It has been often said, with a good deal of truth, that the attendant bees with a queen are the ones that cause trouble in introduction. Some little time ago it was recommended to remove all such and then introduce. But Mr. Wood has gone one step further by putting young bees, that have the same scent as the colony, in with the queen. It certainly looks as if it were all right. Unfortunately the plan would not be one, however, that could be used by beginners. They would not know how to get the bees out of the cage, and still keep the queen in; and much less would they be able, with their inexperienced fingers, to pick up bees and cage them, even if they could always tell young bees. So I suppose the directions that ordinarily go out with mailing-cages had better be left as they are. But the experienced beekeeper, when he has a valuable queen to

introduce, would do well to follow the Wood plan. I should not, however, consider it infallible, for I do not believe *any method* will ever be devised that would invariably introduce successfully queens to all kinds of colonies.—ED.]



AMERICAN BEE JOURNAL.

Concerning the adulteration of comb honey, Mr. York well says :

That hoary lie about the adulteration of comb honey seems still to retain much vigor. Here is a sample of its cat like vitality :

"On my vacation in Michigan last summer I got some real honey—the real sweet kind, with a comb that chews up beeswaxy. It was so good that for three months after I came back I tried to get, in Chicago, some honey, but I could not find it. Of course, every grocery store had what it said was strictly pure honey. In the nicest-looking combs — too nice looking; it was plain that it was all manufactured. A few days ago my grocer told me he had some real honey this time. I was certain of that, too, as soon as I saw it. I have worked with bees and know the ear-marks of their handiwork, and that comb was just irregular enough, imperfect enough in places to fool me. I bought two pounds. And when I got it home and took a mouthful the honey was not very sweet—it was a poor grade of glucose; and the comb melted in my mouth—it was paraffine."

No fading away of vigor about that, is there? Indeed, it has gained a robustness that exceeds its former self; for in former stages it only claimed that a minor part of the comb honey in Chicago was adulterated; now there is none of the genuine to be found in Chicago, although it be sought carefully for three months!

The amazing part about it is that this vigorous slander is not found in some obscure place, spoken by some ignoramus in the country grocery at the cross-roads, but it is an opinion delivered in all seriousness before a body of supposedly brainy men. It is an extract from a paper read by the proprietor of the *Farmer's Call*, at the annual meeting of the National Agricultural Press League, and published in that sprightly periodical, *Agricultural Advertising*, published by Frank B. White Co. Mr. Frank B. White is well known as a man of untarnished reputation, and the soul of honor. Taken all together, after so many years of battling with a great wrong, bee-keepers may be excused for feeling just a little discouraged as to getting anything like a semblance of justice.

More may be said of this hereafter.

These base falsehoods on the in-Stahlment plan seem to have originated from a party in Quincy, Ill., who had spraying-outfits for sale, and advertised them in the bee-journals. He advised spraying trees in bloom; and when he was debarred from further opportunity of doing evil he turned his guns on bee-keepers as above. That such ill-meaning men should be able to get a hearing before such a body of men leads one to think that the latter are not up to mediocrity in intelligence.

Mr. E. T. Abbott, in the *Busy Bee*, handles this matter in a manner highly gratifying. Here is one extract :

Think of a man who knows enough to edit the Monthly Blatter, of Scrogsville, to say nothing of an up-to-date agricultural paper, getting off this stale, dead, rotten, and long since buried slander on honey, before a lot of intelligent agricultural editors and pub-

lishers. Why! the very thought of it should drive him to sack-cloth and ashes, and an abject apology to the whole bee fraternity.



BRITISH BEE JOURNAL.

Concerning Mr. Dzierzon's connection with the invention of movable frames, Mr. A. Royds, of Soberton, England, says :

The recent interesting articles by Mr. R. Hamlyn-Harris on the "Biology of the Honey-bee" contain a reference to movable-frame hives in connection with the renowned name of Dzierzon that may be the cause of a certain degree of misconception. Very recently I had the privilege of reading Dzierzon's work, "Rational Bee-keeping," in the translation published in 1882 by Mr. C. N. Abbott, from the then latest German edition of 1878 by H. Dieck. The hives which Dzierzon there describes and recommends are not in any correct sense movable-frame hives, but rather adaptations of the old bar hive which had been known in England since about the middle of the eighteenth century. Although described as "movable," the combs are not so in the sense now understood, as they had to be cut away from the sides of the hive before they could be taken out. Moreover, as the hives were made to open at the ends, it was possible to reach any interior comb only by the formidable process of cutting away all those in front of it. The feature, indeed, most likely to impress a present-day bee-keeper on reading the work is the utter lack of prescience exhibited by so skilled an apiarian and keen investigator as Dzierzon in regard to the use of both movable frames and comb foundation. The latter, in particular, he dismisses as hardly worthy of practical consideration, while the former fare but little better at his hands.

I am not aware that he ever modified his views on these subjects; but, as movable frames had been perfected by both Langstroth and Baron von Berlepsch some twenty-seven years prior to the date of the edition I have referred to, it is clear that credit does not belong to Dzierzon in this connection.



THE TROUBLES OF A FOUL-BROOD INSPECTOR.

New Laws Needed; War on Stationary Combs.

BY J. M. HAMBAUGH.

This is said to be a progressive age; and I believe that, in the general acceptance of the term, it is true; but when I travel over our beautiful country, with its rich nectar-producing resources, and scan the very crude condition of a great many apiaries of San Diego Co., I feel very much like questioning the truth of the above quotation. When I see so much of the go-as-you-please, haphazard, miscellaneous mixups of every description, it makes my heart fairly ache to realize the splendid opportunities being lost for the want of a little progress. In some instances we come to a progressive, wide-awake man, whose bees, hives, fixtures, and general surroundings indicate an apiarist of culture. His hives, lids, platforms, brood-frames, etc., are of exact pattern. All combs are movable throughout his entire yard, and he takes pleasure in guiding the inspector in his work from hive to hive, for he readily understands that the work of the latter is chiefly in his

interest, and to guard against the possible danger of "foul brood and other infectious diseases." His brother bee-keeper, but half a mile or so distant, however, is of the old primitive style. His bees "work for nothing and board themselves," and occupy a deserted rock pile or isolated nook, and when the task of inspecting is undertaken, "Oh, hokie! shade of our ancestors!" Here is a problem that is not problematic—combs crossed and re-crossed; right and left angles, half-moons, quarter cuts, and miscellaneous go-as-you-please brood-nest.

Foul brood, black brood, and all the diseases known in the category can fester and thrive in these old non-movable-comb hives, so far as the efforts of the inspectors are concerned, from observations that can be gained in the brood-chamber, and so the non-progressive slipshod bee-keeper can thus hug an adder, not only to sting himself, but also his neighbors, who are powerless to help themselves under existing conditions.

Now, I am sure, brother bee-keepers, the picture is not overdrawn, and I look upon it as an absolute necessity in behalf of the best interest of the careless bee-keeper, as well as the protection of the progressive apiarist, to enact a State law making it obligatory on each and every bee-keeper to put his bees upon movable combs, so that they may be accessible for investigation and manipulation. It would be doing no one an injustice, but instituting a righteous defense against the common enemy to the bee-keeping fraternity, and raising the industry to a higher degree of progress. I also believe it very essential that a law be passed compelling any one, under penalty of a fine, to obtain a certificate from a lawfully appointed inspector, certifying that his or her bees are healthy, and free from all infectious diseases, before he can be at liberty to move them from one locality to another; and when bees are imported from an adjoining State that has no laws of a like nature it should be the duty of the owner of said bees, under penalty of the law, to have at once said bees inspected.

And now, Mr. Editor, I desire to hear from you and all others interested in the bee-keeping pursuit. If we desire to progress, and protect ourselves against impending foes, we certainly should have laws that will defend us. It is said, "In counsel there is wisdom." Now let us have the counsel.

Richland, Cal.

[I believe I saw more slipshod bee-keeping, go-as-you-please "any old way" methods in California than in any other State I ever visited. In saying this I do

not mean to convey the impression that there are no up-to-date bee-keepers using modern methods there. We see the two extremes—the best and the poorest. One reason of this is that, when the seasons are so wonderfully productive, those who have the idea that "bees work for nothing and board themselves" are anxious to get some of this honey that "rains down as free as water;" and they see no reason why they can not do as well as their neighbors, but they never do.

Yes, in your State it would be a good idea to have a law to *compel* all persons who keep bees to put them in movable-frame hives; but such a law would hardly be needed in other States.—Ed.]

RAMBLE 196.

Foul Brood in California; Shaffner Bros.; E. R. Root's Visit; Jouncers.

BY RAMBLER.

Foul-brood inspection is practiced to quite an extent in Central California. Every county that is noted for bee-keeping has its inspector. Mr. Bowen is inspector for Fresno Co.; and when he has a real hard case of foul brood on hand he calls in the prominent bee-men of the vicinity and allows them to inspect with him; and, having their indorsement, he goes ahead to destroy. While Mr. Bowen is independent enough to take the most severe measures, these witnesses he calls in give him such a backing that there can be no cause for complaint.



LOOKING FOR FOUL BROOD.

There is, nevertheless, a faction of beekeepers in the county who believe the disease can be temporized with and eventually cured. Esq. Abbott is of this opinion, and he advises the quarantining of all foul-broody combs, extracting the honey and cut-



FIG. 1. RAMBLER'S JOUNCER FOR CLEANING SUPERS.

ting out diseased cells until the disease is cured. The extensive bee-men believe in heroic methods, and they think that the esquire might in time cure a colony of the disease; but the careless bee-keeper would not. Then there are a few instances where Mr. Bowen has been abused while in the performance of his duties, which, I suppose, is the common experience of foul-brood inspectors. There was a very bad case of foul brood in a small apiary of about 50 colonies near Selma, and Mr. Bowen called in a few men, as usual, in order to make his authority stronger. Mr. Stearns had an idea, and a correct one, that the Rambler would like to be on the board, and, with that good team of his, he trotted me over to Selma. Mr. Bowen had a strong backing in the persons of Mr. Stearns with his many hundred colonies, and Mr. Payne with many hundreds. Then there were four or five besides, with a varying number of colonies and experience. Mr. Bowen was armed with gauntlet gloves, veils, smoker,

and several prodding-wires. These were sharp-pointed, and were distributed among the board of examiners. If an examiner found a suspicious portion of brood the prodder was used. After prodding around among the disease the prodder was prodded into the ground a few times to remove all danger from the germs getting from the prodder to the man and from the man to his own bees, and that was a wise provision on the part of Mr. Bowen.

But the fun came in when we came across box hives with tops and bottoms more or less split, and nailed on with ten-penny nails.

Well, that bottom had to come off, and a slice of comb cut out and examined; but I protested that a little piece of brood was not enough, when some of the movable-frame hives had been examined and condemned when only a cell or two of the disease had been found. What if a cell or two should be hidden somewhere in that brood-nest? The board decided we could not tear all of



FIG. 2.—RAMBLER'S JOUNCER AND HOW IT GETS THE BEES.

the brood out without ruining the colony, therefore we passed it as good. I wish, however, to make a minority report that all such hives should be burned; for a bee-keeper who will tolerate such hives in his apiary ought to be burned—I mean the hive, of course, not the man. The photo shows the board at work, Mr. Payne pointing his finger at that square hole in the top of a box hive, and the inspector holding a piece of comb that had to be cut out. They are all deeply interested.

Well, I am now about to leave Central California; and before doing so I wish to note the fact that E. R. Root halted from his mad 6000-mile (more or less) rush, and made Mr. McCubbin and myself a visit. I was at the station to welcome our distinguished visitor; and of all the odd sorts that got off the train he was one of them. A big grip, three cameras, and a new-fangled tripod. Then our guest had been slinging ink at such a rate that his hands and face were more or less picturesque. Mr. McCubbin, with his old white horse, soon deposited him safely under his roof, where a scrubbing-up could be accomplished. I well remember what Bro. Hutchinson said about Editor Root and his affability as a leading characteristic; but there must be a mistake about it, for we found that his leading trait is the consumption of apricots. This excellent fruit was rich and ripe at that time; and every time a crate was placed in the room it would be emptied in no time. Mr. McCubbin informed me confidentially that he would keep ye editor supplied, even if it took a leg; and he was as good as his word. He always had a full crate to replace the empty one. Mr. McCubbin is now planning to plant a large apricot-orchard. He reasons that, if all of the Roots are such lovers of apricots, he would prepare to supply them by the carload; so, look out, Rootville.

I was greatly pestered by the editor's persistent habit of snapping his three kodaks at me. I am usually a sober fellow; but you must forgive me if I did smile a little while he was indulging in his habit.

Well, we had a happy time, didn't we, Mr. Editor? May your shadow never grow less. Remember, Mr. McCubbin will soon be raising apricots by the carload.

But the best of friends must part, and our happy incidents must close. The scenes must shift, and I find myself again in lovely Los Angeles.

The first consideration upon my return south was my own apiary. I had left it in charge of two young men, Arthur and Earl Shaffner. When we leave our goods and chattels in the hands of others it sometimes happens that said goods have a mysterious way of going to the bad; but I found the opposite condition in my apiary, and I could not help remarking, in Bible language, "Well done, good and faithful young men." I predict that the brothers will step up higher in the bee business. I regret that the aforesaid editor did not take time to

make their acquaintance, and examine¹ a modern up-to-date apiary.

One of the chief up-to-date appliances in my apiary is known as a jouncer, and it receives the unqualified approval of the brothers. Some four or five years ago I described, with pen and pencil, my first jouncer, and it was a very crude affair compared with the one in use at present. The photos show the device and how to use it. It will be observed that it is made very strong, made mostly of tough fir, and put together with bolts, and a cloth tray is adjusted under the hive to be jounced. When it is desired to jounce the bees from a super it is adjusted as in photo No. 1, and the whole jounced against the ground. The sudden jar, or a few of them, send the bees all into the tray. The latter can be removed as shown in Fig. No. 2, and the bees dumped on the top of the frames of the colony. In order to cushion the lower ends of the corner posts of the jouncer they are chamfered off to a point. As there are no stones in the apiary, when the jouncer strikes the ground the jounce is broken just enough to prevent the combs from breaking. Arthur Shaffner is operating the "masheen." The benefits derived from this method of getting bees off the combs are all in the line of rapid manipulation. In the *Amer. Bee Journal* not many months ago, Mr. Davenport caught on to this idea and applied it to the common L. hive. The best success, however, is attained with a shallow brood-chamber; and the only objection that the brothers and I have to it is, when there is much thin honey it slops out upon the bees; but, of course, it is best to wait until the honey is thick. It is very hard to make people believe that any new way is better than their way; but as my former good seed sown brought forth some good results, I sow again, and again watch results. Whether bee-keepers use the Rambler's jouncer or not, I hope the bee-keepers will discard the old obsolete use of a brush. Bees can be shaken off the combs clean enough. In Central California but few brushes are used.

I have great hopes for the shallow extracting-super. Mr. Davenport says the jouncing principle is worth \$50 a year to him, even with the standard frames. Now, I would give \$50 for a method that will enable me to extract a whole shallow super without removing the frames. Can it ever be done? is the query of the Rambler.

[I agree with you most heartily that it is not wise to temporize with foul brood. Cutting out here and there diseased cells and quarantining certain combs and certain colonies is a very dangerous procedure, and should be condemned by all intelligent and progressive bee-keepers. But say, Rambler, Inspector Bowen should know that it is very dangerous to run those steel points down into the ground to disinfect them. He can not render them harmless by so doing. Any scientist who is at all familiar with

the transmission of disease through the medium of germs knows that nothing but actual boiling, or, better still, heating those points redhot, will render them safe to punch into healthy brood at another apiary. I am sure I am right in this, and therefore I most respectfully urge Mr. Bowen to discontinue the practice or he will scatter the disease. My practice is to take a spear of grass, or, better, a wooden toothpick, and punch it into the suspected cell. After having used it I shove it into the comb and *leave it there*. Then I take a new pick for another colony. After that I wash my hands thoroughly. Inspectors should provide themselves with a whole box of toothpicks on their inspection tours.

So you think, Rambler, I was fond of apricots, and I was. But now look here. Don't you know I was trying to eat as many as *you* did, and couldn't? Apricots—yes, I ate them wherever I could get them, all through California. Why, the dried fruit does not compare with the fresh.

Yes, that jouncer is a capital device. I think so well of it I am going to have it shown in the next edition of the ABC of Bee Culture. On my recent trip I saw where it had been put to use, and I know what it can and will do. It is a great thing. Rambler should have a "vote of thanks" for giving to the general bee-keeping public so good an idea, even if he is mean enough to malign me about my weakness for apricots.—ED.]



WINTERING BEES UNDER SNOW.

"Good evening, Mr. Doolittle. I have been told that bees winter well under snow; and as we have an unusual amount of it for this time of the year (November 29) I thought I would run in a little while and see what you thought about the matter."

"Yes, we are having lots of snow, Mr. Brown—fully a foot on the level, I think, though the wind has so piled it up that it would be hard telling just how deep it is. How did you find the roads?"

"Find them! I had hard work to get here at all. You remember that place up by Hemlock Hill? Well, the snow is fully six feet deep there, and I hear that the stage will not try to start at all to-morrow unless it stills down; and the snow is drifting over a part of my hives next the west side of the apiary, and that is the reason I came to see you."

"The question has been frequently asked in our bee-papers whether it was best to allow the hives containing bees to drift under in winter, and some have talked of putting up a partial windbreak, to the end that the bees might be drifted under."

"And what was the reply to these questions?"

"The reply has generally been, 'Yes, the more snow over the hives the better;' but I do not indorse it."

"Why?"

"Because my experience has been, where hives are covered with snow the bees inhabiting them did not winter well. In fact, I believe that the bees are worse off where the hives are thus covered than they are where there is no snow about any part of the hive during the whole winter. But where the snow can come up to near the top of the brood-chamber, and no higher, it may possibly be a little help; but even then I would about as soon risk their safe wintering with no snow about them."

"This is rather unexpected talk. Can you give me something of your experience, so I can judge somewhat in the matter?"

"I am always free to tell any thing I know that may be of help to any one. For the first few winters after commencing to keep bees I wintered all I had in the cellar, as the man from whom I bought my two first colonies wintered in the cellar. As there was only a small cellar under the house where I lived, and this mostly occupied with vegetables and things needed by the average family, it became crowded as the bees increased, until one winter they did not winter well, so I decided to winter on the summer stand thereafter all that the cellar would not hold without encroaching on the room needed in the same for family use. At this time I ran across a newly found bee-friend who swept the snow up around his hives as it fell, and the idea pleased me."

"What? Go to the trouble of sweeping snow around the hives?"

"Yes; it was only good exercise, you know, or at least that was the way he put it before me; and this exercise, even if it was called work, was much cheaper than it would be to build a cellar for the bees. And so I went to sweeping the snow as it fell around the bees, and by December 10th I had the hives all covered from sight. And let me tell you that the pyramids of white snow all over the bee-yard made a very picturesque view which was quite enchanting."

"Well, I should think it would. But did it stay so all winter?"

"No. At the end of a month we had a thaw; and when I went out to look at the hives I found that the warmth from the bees within had so thawed the snow that a cat or small dog could go all around between the hives and snow. This pleased me, and I said to myself, 'This is just the way to winter bees.' On examination, however, I found that the bees were very uneasy, and, upon raising one corner of the quilt, were ready to fly out and perish on the snow instead of being quiet, as all good bees should be when not warm enough for them to fly."

"How did the matter come out?"

"The rest of the winter we had very little snow; and when spring fairly opened I found I had only 29 weak colonies out of the 50 left out in the fall."

"This was a big loss."

"Yes. But I thought that, had the snow remained on all winter, the loss would not have occurred, so I was anxious for the next winter to come that I might try it over again. The next winter settled the matter, for this time we had snow to keep the hives covered from December to April. But in February there came a warm day and I shoveled out a part of the hives, those not drifted under too deep, and I found the bees in these colonies so loaded with excrement that many of them were unable to fly, while the inside of the hive smelled badly from its being soiled by bees which could not hold their feces any longer. Brood-rearing had also commenced to an extent usually found the latter part of April, and the vitality of the colonies seemed very much worn, while the greater part of the honey which they went into winter with was consumed. When the working season arrived I found that the larger part of the colonies were dead, and I was left with a few weak colonies, combs foul with excrement, and nearly destitute of honey, so I had nearly a total loss except the hives and combs."

"Did you try it again?"

"No, not by the sweeping-up plan; but I have many times had colonies drift under when we had deep snows; and nearly always, where a colony was drifted under so that the snow kept about the hive for six weeks to two months, there was more or less injury done. One year I had snow ten feet deep over a part of the hives, so that I lost track of several of them altogether, the wind bringing the snow from a peculiar direction, over and around a knoll. Of these colonies, not a single one was alive on the first day of the next May."

"This certainly has a bad look from your experience. How do you account for these losses?"

"The difficulty seems to be that, as soon as the hives are covered with snow, the pure air is cut off to a certain extent, which, combined with the warmth from the ground, and the snow not allowing that, and the warmth from the bees, to escape, makes the conditions so unusual that the bees become uneasy, break the cluster, go to breeding, consume an undue amount of stores, and die of diarrhea and exhausted vitality before any of the brood, or brood of sufficient extent, emerges from the cells to take the place of the old bees which are prematurely dying off under these conditions. Young bees brought on the stage of action under such conditions do not seem to have the strength and vitality of those which emerge from the cells during September and October."

"Then you would not advise leaving bees where they are liable to be drifted under snow during winter?"

"No, not till I know what the result would be in my locality. Why I say this is, that some say they are successful in thus wintering, and I am bound to believe them. To know this result, without any great loss, I would try two or three colonies for a winter or two. If they winter well, you can safely try more; and when you are sure of the ground you are treading upon, then you can risk the whole apiary or reject the plan as the case may be. This is the only safe way to venture into any thing we are not conversant with."



RENEWALS are coming in at a heavy rate, as well as new names. For all this we feel thankful. Our readers have noticed, perhaps, that we have been giving extra pages for several months, and from present indications we shall have to continue doing so for many months to come.

WE have just been passing through an exceptionally cold snap of weather, the mercury playing down nearly to zero, and some of the time considerably below. For December it was the coldest on record for many years. It is now, the 28th, very warm, and muddy and sloppy. There was a peculiar satisfaction during the cold weather in thinking that we had so many of our bees indoors.

E. R. ROOT'S LINE OF TRAVELS AND THE SCOPE OF THEIR INQUIRY AMONG THE BEE-MEN OF THE WEST.

SOME are now asking how long the write-up of my travels in the great West will last, as they desire to make their renewals cover the entire period. The series, fully illustrated, will continue throughout the current year; and for the benefit of some who would like to know *what* territory they will take in, I will at this time give a brief outline of my itinerary. There will be one or two more articles on Arizona. Then we will skip over into Southern California. Two or three articles will cover the southern part of the State; two or three the Northern and Central parts; one or two in Oregon; two in Idaho; two or three in Utah; three or four in Western Colorado; two in the Eastern part of the State; then we will jump over into Iowa. Besides these, there will be special articles on the growing of alfalfa, irrigation of alfalfa, and irrigation in general. Then I will have something to say on reclaimed lands that again went back to deserts; of alkali lands and bad lands; of land speculators and their victims. My route throughout the West was aimed to take in some of the best bee country in the world—certainly in

the United States. I found bee paradises all along the route—some of them overstocked and others fine bee-ranges, but in which there were only a very few bees.

Much of the country traversed was new, and just opening. Some places were veritable deserts covered with sand and sage brush. In most of these State and government aid has been or soon will be secured, by which these waste lands are soon to be converted into luxuriant gardens and fruit-ranches.

COMB-HONEY SLANDERS; THE DEPARTMENT OF AGRICULTURE TO OUR RESCUE.

THESE whopping big lies (I don't know what else to call them) keep on going the rounds of the press, hashed and reshaped over and over in a way that is perfectly disgusting; and the worst of it is that some of the apparently reliable *agricultural* papers are taking up the refrain—papers that ought to know better. The publisher of any sheet printing such stuff, without taking pains to use a little common sense, or at least to investigate, ought to be bombarded by bee-keepers everywhere with replies.

As fast as these clippings have been sent in I have been answering them, using respectful and courteous language, stating the facts, but in such a way that it will be easy for the editors to put in a retraction. The following is substantially the reply I have sent to many of the leading papers:

Gentlemen:—In your issue for — there appears an item to the effect that comb honey is manufactured, and that the combs were molded by machinery and filled with glucose. We assume, of course, that you are honest in making the statement, and all we need to do is to give you facts on the other side. We enclose for your consideration an offer that we have had out for twenty years. The terms of it have been published in some of the large daily papers of the country, and we are sending out hundreds and thousands of them now. You can readily see that, if there were any truth in the canards now afloat in the press, there would be a chance for some one to make some money.

We would call your attention to another fact; namely, if combs were molded on dies they would all look alike. If you will take the pains to look at the comb honey for sale on the market you will see that they are very dissimilar in appearance.

Hoping that you will give this matter your kind attention, and help us to rectify the great wrong that is now being perpetrated upon thousands and thousands of honest bee-keepers, whose product is now placed under the ban of suspicion, we remain

Very resp'y yours,

P. S.—Kindly send us a marked copy of your corrected reply, if you can see your way clear to make such correction.

But as one always has more influence in his own locality, I suggest, yes, urge, that every bee-keeper finding his business slandered, and his reputation assailed, send to the papers publishing such matter a respectful and gentlemanly reply, something in the nature of what I have given above. Or, better still, write out your answer, get some one to copy it on a typewriter (because editors take more kindly to type-written matter), and take it personally to the publisher, explaining that your business has been damaged, and as a personal favor you hope he will publish the correction.

Nov. 28 the Chicago *Chronicle* published one of the worst slanders on the honey business I have seen. It was to the effect that bee-keepers *themselves* were implicated in this manufacturing business, and therefore did not like to have the matter exposed. I sat down and wrote as nice a reply to that paper as I knew how, and a few days later I had the gratification of reading in their columns my letter *in full*. The Chicago *Chronicle* is a paper of great influence, and it is to be hoped that the correction will be seen by as many as saw the slanderous statement.

The Ottumwa *Courier*, published at Ottumwa, Iowa, published the usual Jones comb-honey canard. The clipping was sent me, and I replied, substantially as I have given it above in the dummy letter, and later on I had the satisfaction of seeing in that paper a half-column retraction. It seems the editor of that paper, after receiving my letter, wrote to headquarters, the Department of Agriculture, Washington, asking if it were possible to manufacture comb honey, etc. The Department very promptly replied in a long letter, over the signature of Prof. Frank Benton. In this letter the entomologist showed how impossible it was to manufacture the comb and fill it with glucose, and then stated that \$1000 had been offered for a single sample of adulterated comb honey for a period of many years, without a taker.

This coming as it does from the Government of the United States bearing the Department seal will have great weight, and I suggest that those who answer these canards about honey always incorporate in their replies the statement that the Department has denied in toto the foolish stuff that has been going the rounds of the papers.

Now, then, all this talk about adulteration will do no good unless our friends—that is, our subscribers—take the pains to answer these canards *themselves*. Those who write for farm papers on bee topics are especially requested to help turn the tide the other way.

Editor Abbott, of the *Modern Farm and Busy Bee*, and Editor York, of the *American Bee Journal*, are doing some splendid work; but don't, *don't* expect the editors of the bee-papers to do the whole of it. Roll up your sleeves and dip down deep into your ink-wells. And while you are writing, use the most respectful language you know how to command. If, for instance, you call them silly, fools, liars, etc., you will accomplish nothing.

A SUIT FOR CRIMINAL LIBEL.

Later.—Since writing the foregoing we have received a copy of a daily paper, the name of which we will not mention for the present, that actually goes so far as to say the Root people, and E. R. Root in particular, are engaged in the business of putting out bogus comb honey filled with glucose, and that we ought to be brought before the Grand Jury for violation of the pure-food law.

We have put the matter in the hands of our attorney, for we think it is high time to make an object-lesson. Our own name, as well as that of bee-keepers as a whole, needs to be protected, and it will be, too. We expect to begin both a civil and criminal action.

PROF. GILLETTE'S MEASUREMENTS OF BEES' TONGUES; SOME INTERESTING FIGURES.

At the last session of the Colorado State Bee-keepers' Association, at Denver, Prof. C. P. Gillette, an able scientist and a careful and conscientious investigator, read an exceedingly interesting and valuable paper on bees' tongues and the measurements that he has been making during the past summer, and the same is now published in the *Amer. Bee Journal*. "To a student of biology," he says, "particularly if he be an entomologist, the idea of a long-tongued race of honey-bees coming quickly into existence seems extremely improbable. . . . Nature has been breeding this tongue to a standard length for so long a time that it is not likely to vary rapidly under artificial selection where parentage can be controlled on one side only." He took "no interest in the matter when it was first agitated. Finally so many bee-keepers of known honesty and sincerity of purpose began to advocate breeding for long-tongued bees, and to advertise such bees for sale, that it seemed necessary that some one having the facilities and the necessary training should make a careful study of the subject and report the results," and he accordingly went to work.

For some time back he has been gathering specimens of blacks, of Italians, of Cyprians, Carniolans, and of *Apis dorsata*; but before giving his measurements he very properly draws a distinction between tongue *reach* and tongue *length*; and then he goes on to say that he believes "for practical purposes it may be always considered true that the bee with the longest tongue has the longest possible tongue reach." . . . "In my first measurements," he adds, "tongue *length* only was taken into account; but in the later ones, the tongue *reach*, so near as I could measure, was also recorded; and an examination of the figures in the following table will show a far greater variation in the latter measurement than in the former."

Next he describes the various agents that were used to kill the bees. Chloroform, alcohol, formalin, cyanide of potassium, and boiling water were all tried; but the last named was found to be the most satisfactory. In Prof. Gillette's table I find the whole tongue length of Italians averages, in hundredths of an inch, a trifle over .25. The average length of the ligula only was about .16%. In the matter of tongue reach he found considerable variation—that is, the distance that the bee can reach into a flower-tube, measuring from the end of the tongue up to the point where the tongue comes out of the jaws. The longest tongue

reach of those Italians already referred to was .22, while the shortest was .15. The variation in the tongue reach as shown in Prof. Gillette's table corresponds very closely with a similar set of measurements that we made here in Medina, and the variation is considerable. We never measured total tongue length, or length of ligula, for the simple reason that we did not have proper facilities for dissecting the bees; and, moreover, we felt that it was not length of the whole tongue but length of *reach* that was the important point to know.

Another interesting fact developed by the table is that Cyprians furnished by Frank Benton showed a greater tongue length and a greater tongue reach than the Italians. The average tongue length for Cyprians was something over .26, while the longest tongue reach was .23, and the shortest .19.

Carniolans, also from Frank Benton, showed a tongue reach and a tongue length corresponding very closely to the Italians; while the same measurements for black bees dropped down about a hundredth of an inch for a total tongue length, while the tongue *reach* itself of these same black bees fell considerably short of the Italians clear through. The longest of the Italians was .22, and of the blacks .19.

Another striking fact is that both the total tongue reach and tongue length of the *Apis dorsata* is nowise in excess of similar measurements for Italians. Indeed, the tongue *reach* itself is not so great. From this it would appear that, if these measurements are relatively correct, we should not, as has been supposed, by importing these bees secure greater length of tongues, nor would there be any direct advantage in the matter of fertilizing certain flora having flower-tubes so deep they can not be reached by the common bee, *Apis mellifica*.

But the figures showing tongue *length* of bumble-bees is in somewhat striking contrast to those showing the measurements of the other bees. While the longest tongue length of Italians is .26, the longest of the Cyprians .27, Carniolans .26, and of blacks .25, the bumble-bees show a maximum length of .58 and .50 as the average, with a minimum of .45. Apparently the tongue length of bumble-bees varies considerably. This might be accounted for by the difference in age of the bumble-bees measured. It will be remembered that the bees of *Apis mellifica*, when a week old, are as large as they ever will be, while those of the *Bombus* vary in size considerably, according to age.

In commenting on his table Prof. Gillette says, "The extreme variation in tongue length in Italians was but .02 of an inch. It was the same with the Cyprians, and was but .01% with the blacks. The average tongue length with the Italians exceeds the average of the blacks by only .014; and the Cyprians' tongues exceed the Italians' by .0065. An examination of the table will show eight lots of Italian bees with an average tongue length exceeding that of the

best lot of long-tongued bees. I shall have to conclude that, so far as my study of the subject has gone, there has been no indication of any strain of the common honey-bee, *Apis mellifica*, worthy of the distinction long tongue; and if any of the bees examined are worthy of such a name it is the Cyprians. . . . I have received bees from colonies that were said to work freely on red clover, and along with them bees from other colonies in the same apiary that were said *not* to work on red clover, and I have been unable to find any difference in the tongue lengths in favor of the clover workers."

In concluding, Prof. Gillette says:

I do not wish to carry the impression that I think it would not be to the advantage of a honey-bee to have an increased tongue length, but I can hardly understand how the addition of one or two hundredths of an inch is going to help very much to gather honey from red clover. The length of the corolla-tube through which the tongue must reach, in the heads of red clover that I have examined, have varied between .34 and .37 of an inch. The extreme reach of the tongue beyond the mandibles in any bees I have measured has been .23 of an inch. It makes me wonder if it is possible that those who think bees have gathered honey from red clover can be mistaken, and that they visit the blossoms of this plant for pollen only. This is only a suggestion, but some one who has the opportunity should settle it for a certainty.

In regard to this last, I feel that Prof. Gillette has gathered a wrong impression, and certainly wrong in supposing that pollen may be the only thing sought by the bees. The red-clover corolla-tubes grown throughout the East, as I have measured them, in hundredths of an inch, vary all the way from .12 to .36 or .37 in length, the depth increasing from the outside to the center. In the rain-belt, at least, I am sure I am right for these measurements. What they may be in Colorado I am not able to say. As nearly as I can estimate, half of the tubes in an ordinary head of red clover come within the range of .20 and .22; so that the bees that have a tongue *reach*, no matter what their tongue *length* may be, will be able to gather from half of the tubes; and probably half of all the nectar in the head, as they get some out of the long tubes. That there is honey in these tubes is well known, a fact which can be easily demonstrated. All one has to do is to pull the tubes at the right season of the year, squeeze one between the thumb and finger, and a good-sized drop of nectar will issue from the end. Nay, I have gone further. I have watched bees working on red clover, and I have repeatedly seen them extract all the nectar out of the shallow tubes, and draw it down in the long tubes to a point just equal to their reach. While the bees do, of course, gather some pollen from red clover, yet I think the fact is demonstrated beyond doubt that tons and tons of such honey is gathered, because there are times when nothing else is in bloom, and the bees will store in sections quantities of honey that tastes very much like the bumble-bee honey of our boyhood days. On all other points I believe the professor's conclusions are mainly correct, except that some bees

have greater reaching powers, probably, than actual measurements will show. His tables show a variation in tongue reach in Italians from .15 to .22. It will be noticed that he says he had measured the tongues from red-clover bees, and also the tongues of those that were said *not* to work on that plant, and that he was "unable to find any difference in *tongue length* in favor of the clover workers." The italics in this case are mine. It would be interesting in this connection to know whether those same bees showed a difference in tongue reach; for, as the professor has very properly shown, there is a difference in tongue reach and tongue length, and the variation of the former is much greater than the latter.

It has been shown—indeed, I believe it is generally admitted—that some bees will gather much more honey from red clover than others. Whether there is a physical difference between them has not been proven so far; and, to speak frankly, it looks now as if tongue *length* certainly has nothing to do with it. Whether tongue *reach* has or not, will have to be determined by means of much more perfect glossometers than have yet been devised. I say *glossometers*, because I am convinced that the rule plan of measuring (which I have hitherto advocated) is not altogether reliable. It gives an *idea*, but does not show, as Dr. Miller says in *Stray Straws* in this issue, what the bees *will* or *can* actually reach when alive.

I have had much to do in stimulating a demand for red-clover bees. My idea all along has been to develop a race that would be better workers. The mere question of tongue length was an incident and not an important part of the problem, as will be evidenced by the fact that we of the Root Co. never advertised long-tongued bees except once, and immediately withdrew that advertisement. Our advertising, with this exception, has referred to red clover because we were sure that we had a strain that distinguished itself away beyond any thing else we ever tried, and because we were also sure that some of the daughters from those same mothers had done equally well. We purposely did not emphasize long tongues in our advertisements, for the value of that organ, whether long or short, we felt had not at that time been determined. Editorially in *GLEANINGS* for last April, page 296, I called particular attention to this, and again at other times.

I wish to say this in justice to those who have advertised long tongues: The queens they have sold have, so far as I know, been red-clover stock, and the tongues were only an incident, or supposed to be such. So sure have our friends been that long tongues were part and parcel of red-clover-gathering qualities, that they have in some cases made mere measurement predominant instead of some other quality unknown and yet contributing to the peculiar energy which was shown when red clover was in bloom.

NOTES OF TRAVEL.

The Celebrated Tree Cacti of Arizona; the Cactus as a Honey-plant; the Growing of Alfalfa Hay; how it is Stacked Up.

BY E. R. ROOT.

In our last issue I spoke of the fact that Mr. W. L. Chambers, the "big little bee-keeper," had come after me with his little trotter and light buggy, both of which had been purchased with the proceeds of honey sales. We had planned to drive to Phoenix, and in doing so we had to pass by a cactus forest, perhaps the most remarkable in the world, on the main road leading from Tempe to Phoenix. As we came up alongside of these magnificent specimens of tree cacti, monarchs of their kind, I could not help thinking of my old boyhood days at school when I was studying geography, how I used to look at the pictures of these giant cacti, or what seemed to me to be very funny trees then, and whether or not I should ever see the real thing. I asked Mr. Chambers to drive up near some of them while I with my little pocket kodak would take in a more permanent reminder of them, and here are some of the "shots."

Fig. 1 is a good specimen of the giant tree cacti, and the aforesaid horse and buggy. Something of an idea of its size may be gathered by the height of the vehicle close beside it. As nearly as I can figure from a comparison of heights, this specimen is about 40 feet high. On the top of these cacti (see Figs. 1 and 2) will be seen small objects. They are nothing more nor less than beautiful blossoms that yield copiously a rich thick nectar. Quite a little swarm of bees will hover around them,* for all a bee has to do is to dip down into one of the great big cups, and drink and drink to its fill. Then it flutters off, scarcely able to fly, while the others are gorging themselves only to go back home in a lazy uncertain flight.

* They were thick around them when the photos were taken; but on account of their small size, of course they do not show.

In Figs. 1 and 2 it will be seen that the bark or outer coating has been broken away. A closer view shows a ragged cork-like cellular substance in the center. In front of the magnificent specimen in Fig. 2 stands Mr. Chambers. If we figure that he is 5 feet 7 inches, then this cactus is somewhere about 30 feet high, and the two smaller ones are about 18. Again, comparing the familiar object—a man—with the cactus we find that the latter specimen in Fig. 2 is about 18 inches through. Others that I saw were about 20 inches.

In Fig. 3 we have a general view of the whole forest of tree cacti. Over in the distance will be seen the mountains near which orange-growing, I was told, was possible.

The broad expanse of country shown in this general view is a perfect desert. Nothing will thrive there but these cacti; a peculiar kind of thistle, or what seemed to be such to me, and the ever present sage brush; and yet, on the *other side* of the road were beautiful market gardens and fields of alfalfa. Why this difference? you ask. The one can be irrigated, and the other can not; and I hope it never can, because this desert has some attraction just as nature left it, and man should not be allowed to desecrate it.

As I was going out over the barren side I was particularly cautioned by Mr. Chambers about running across a rattlesnake or a "gilamonster." I took the hint, walking carefully, and keeping a respectable distance from any of the sage brushes under which these reptiles would

be likely to coil and "strike." Every now and then there would be the mound of a prairie-dog. If we kept still long enough these little animals would come out and utter their protest in a series of vigorous little barks. Once in a while a genuine jack-rabbit would start up and speed across the sandy waste, and such ornery-looking things! Such legs and such ears!—so long and ungainly that the animals were originally named "jackass" rabbit, subsequently shortened to "jack-rabbit." So large is the animal as a whole that the first time I saw one as it sped through the bushes I concluded it must be either a small deer

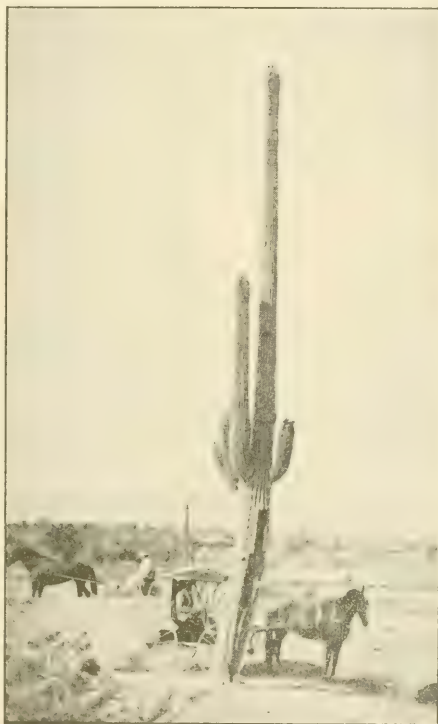


FIG. 1. A GIANT TREE CACTUS, AS FOUND IN ARIZONA.

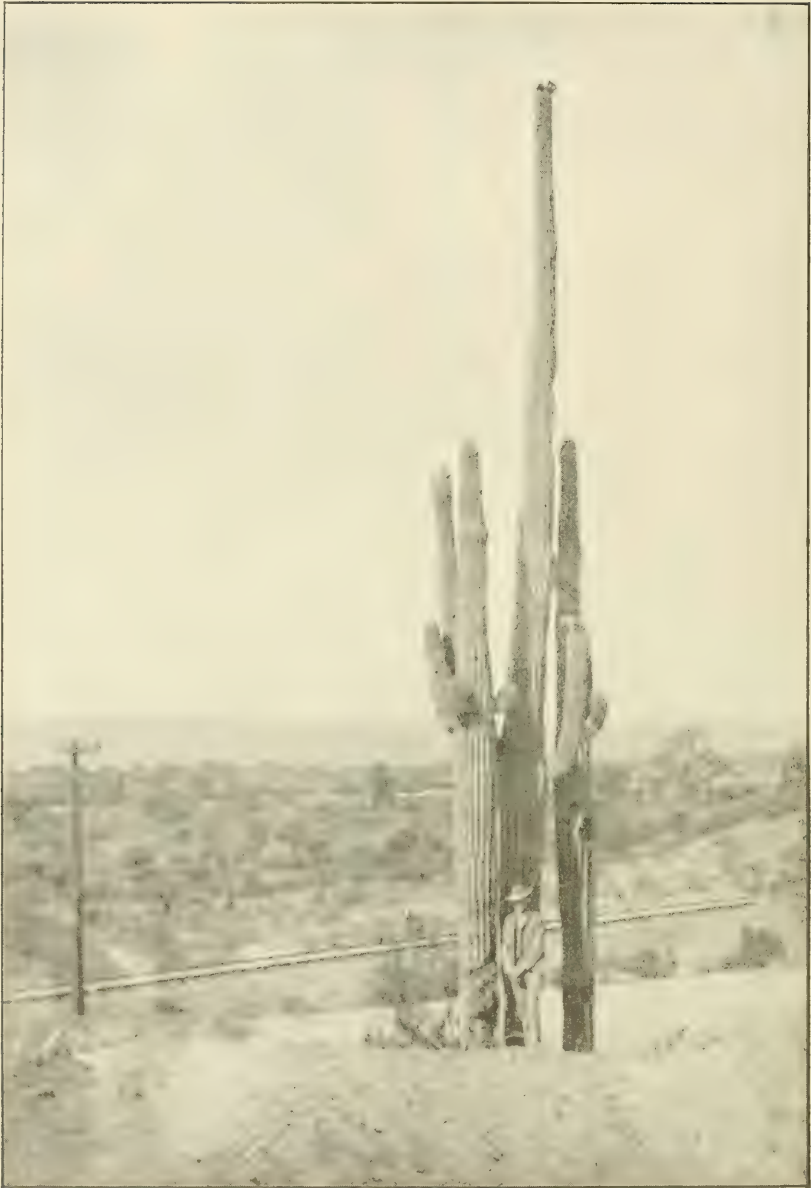


FIG. 2. A DESERT HONEY-PLANT. A GIANT TREE CACTUS.
MR. W. L. CHAMBERS IN FRONT.

or a coyote. But, to return to the cacti. This forest, as shown in Fig. 3, is probably the largest, both in the number of trees and in its general size, of any in the world. There seems to be no apparent effort to preserve these magnificent specimens. They are mutilated by curio-seekers tearing off a piece of the bark. Fig. 1 shows how the trunk of one specimen has been injured. Then, as if the work of civilized man was

not enough, the Indians mutilate them with their bad aim, throwing stones to knock down the fruit that develops from the flowers, of which the bees are so fond. Indeed, there is no way by which this fruit can be gotten but by pelting it down. Taking it all in all, it seems too bad that the general government is not taking more active measures to preserve such magnificent specimens of cacti—specimens that take years



FIG. 3. THE CELEBRATED FOREST OF GIANT CACTI ON THE ROAD LEADING FROM TEMPE TO PHOENIX, ARIZONA.

to grow, and that landscape gardeners in the Eastern cities would pay thousands of dollars for if they could only cultivate them.

Speaking about the fruit of the tree cactus reminds me that no one but an Indian can eat it. It affects white men very seriously, and some have been known to die

from it; for it has a beautiful flavor, and therein lies the danger. Before civilization had encroached on either side of this magnificent forest of cacti, the Indians were in the habit of getting water from them. There is a trick about it that they alone understand; and although the water, I am



FIG. 4. A FIELD OF ALFALFA IN FULL BLOOM.

told, is somewhat brackish, yet to one almost dying of thirst I suppose it has all the freshness of the delightful cool springs that we knew in our childhood days.

After I had snapped the kodak right and left, I got into the buggy again; but as I did so I turned back lingering eyes, thinking that *perhaps* it might be many a year (and possibly never) before I should see the remarkable sight again.

GROWING ALFALFA.

To me, one of the most interesting developments throughout the arid regions of the West was the growing of alfalfa. Almost no other hay will grow in those hot irrigated districts, and yet this thrives wonderfully. A hot dry climate and moist roots give us a fodder that, for fattening cattle, and making them grow *sleek and handsome*, beats any thing else I ever saw. For work horses it is not quite the equal of timothy or oats; but as almost nothing else is to be had, except at considerable expense, farm horses are able to do a big day's work on it, so I was told.

When Mr. Chambers and I were driving by one of his apiaries we came across a field of alfalfa that had reached its perfection of growth. It was in the height of bloom, and the beautiful violet blossoms, and the hum of the bees, made a combination alike pleasant to sight and hearing. I attempted to take a photo of it, but the result was very disappointing. However, I will show it to you as it is. If you were standing out in the field the tips would



FIG. 5. DRIVEWAY TO THE BROMELL BROTHERS' HOME.



FIG. 6. METHOD OF STACKING ALFALFA HAY.

reach very nearly up to your chest; for, as I have before explained, alfalfa grows in Arizona, especially in that section, as it does nowhere else.

But one of the novelties to me was the mode of harvesting this crop. It is cut with mowers as we cut hay in the East; but instead of being put into barns it is always put up outdoors in stacks, giant in size as compared with the little mounds of hay in the rain-belt. Some of these great masses of alfalfa hay, I should judge, were 60 feet long and 25 wide. Instead of pitching the hay from a wagon with a pitchfork on to the stack in the good old-fashioned way, it is carried up by a simple piece of mechanism. But before I show you this machine let me give you a view of a little driveway approaching the fine residence of some of our bee-keeping friends, the Bromell Brothers. They are located near Phoenix; and the house, a new one nearly finished, was at the end of a beautiful drive bordered on either side by palms, cacti, cottonwoods, and other growths peculiar to that climate. And such palms! Many a millionaire, or even one in less comfortable circumstances, would

give much for a single specimen of what grows in Arizona as free as ragweeds in the East. I attempted to take a photo, but this, too, is disappointing. However, I show you the result. The palms show very indistinctly; but one can get some faint impression of the approach to the Bromell Brothers' home.

Well, on arriving there I found them in the rear, stacking hay. A sister, Miss Alice Bromell was driving the horse while the boys, Albert and Fred, were attending the stacker. Miss Alice, evidently fearing I might show her up in GLEANINGS, disappeared, for I had my kodak in hand, and probably looked as if I *might* do some kodaking before I left the premises. The appearance did not belie the intent. The sight was so novel and interesting that I proposed to take in some permanent reminder of how farming is carried on in Arizona, and I did, and luckily for Miss Bromell. The alfalfa hay on the wagon is stationed near the stacker, or what we might call a light derrick. A grappling-hook having four prongs, and in some cases only three, grabs hold of almost a cartload at once. The attendant who drives the horse starts him forward, and immediately the rope traveling over the tackling lifts the load, elevates it to the proper height, and then by means of another small rope the spar or side arm is drawn around until the load stands exactly over the spot where it is to be dropped on the stack! A man on top scatters it evenly, and then is ready to take care of the next bunch of hay. It takes three people to operate it, but these three, with the horse, can do the work of a dozen or so of hand-pitchers, and so much more easily.

The climate in Arizona is so dry and warm, and there is so little rainfall, barns are not needed.* It is, therefore, not necessary, or not so much so, to make the stack shed water as with us in the East. The alfalfa is piled up until it reaches the height of 15 or 20 feet, and then is left to stand till used. The hay, when stacked, is of a beautiful light-green color, and remains so for a year or more, or until it is used, except the portion that is exposed to the direct rays of the sun, which bleaches it somewhat.

The stacker shown in the illustration seems to be a simple home-made machine; but whether shop or home-made, no one in the West would think of trying to stack hay in the old-fashioned way—in fact, it would be simply impossible. Stacks such as we have in the East would be altogether too small; and, besides, the hay would bleach too much. These large mounds economize room, and at the same time keep the hay in much better condition for stock when it is needed.

I also took some views of the Bromell Brothers' apiary; but as they were so much like all the rest of the Arizona yards I do not reproduce them here.

*This is true of all the alfalfa-growing regions in the West that I visited.



J. S. W., Miss.—As to how to get the honey out of the supers into the brood-nests, I would state that the task is not an easy one—that is, if you expect the bees to carry it below. If you rake over the surfaces of the sealed combs with a wire brush, causing the combs to “bleed,” the bees *may* do something in the way of carrying the honey down. But a far better way is to take those same combs, extract them, and sell the honey; then feed sugar syrup in the regular way to give the bees the requisite amount of stores. As to the combs, it would be advisable to set them on top of some strong colonies, where they may be cleaned up by the bees, and at the same time be protected from the ravages of the moth. But I would advise letting the bees clean them and then put them in hives or supers that are both bee and moth proof; or you can store them in a room, fumigating them with bisulphide of carbon, or with sulphur, then shutting the room tight. We use eight-frame hives at the Home of the Honey-bees; but in the South, where extracted honey is produced, the ten-frame size is generally preferred.

DEAD BROOD NOT CAUSED BY SULPHURIC ACID.

J. B. G., La.—With reference to the matter of sulphuric acid and our instructions regarding its use, I have to say that you are laboring under a misapprehension when you suppose that the acid used in refining wax for foundation kills brood. Sulphuric acid is very much heavier than water—so heavy, indeed, that the water will settle down to the bottom of the tank that is intended to be used for the refining of wax. If you are familiar with chemistry you will know that the specific gravity of the acid is considerably greater than that of water. If we put 10 per cent acid in water, then throw in cakes of wax, turning on the steam or heating the wax, acid and water will all mingle together. Our instructions are, after the wax is thoroughly melted, to cover up the barrel or tank and allow the whole mass to cool slowly. All the free wax, of course, rises to the top; the water settles to the bottom, and in turn the acid settles to the very bottom of the tank or under the water. The water and the acid do not make a chemical mixture, but what is termed a *mechanical* mixture, and will, therefore, separate when at rest by their difference in specific gravity; therefore the acid does not remain in the water, as you supposed, in a way to affect the foundation or the wax. Thousands of pounds of our foundation are used all over the United States, in hundreds of localities where there is no foul brood at all.



Go ye into all the world and preach the gospel to every creature. MARK 16:15

A great many people seem to think this means that we are to go to some of the distant islands of the sea, to Africa, possibly China, or to hunt up some place where there are savages who know nothing whatever of the Bible. But a few, thank God, recognize that there is need of preaching the gospel, or, perhaps, *teaching it*, right here in America. Sometimes right in our own town—yes, may be just across the street, or almost next door; and, come to think of it, I shouldn't wonder if there were professing Christians who are neglecting or forgetting to preach and teach the gospel of Christ Jesus among the inmates of their own home—among the hired help, for instance. Why, I almost got into a jangle with quite a lot of my good friends because I ventured to suggest that, if the hired man or hired girl sat down to the table with the rest of the family, it would give a better opportunity, by precept and example, to speak of "free salvation" to all.

For some years I have known more or less of a work started by a single person in Buffalo. This person is a woman, and not a very big one at that—a girlish-looking woman who started out alone, almost single-handed; yes, and she chose for her location one of the worst spots in that great city. When my companion and I got off the cars rather late one December afternoon I inquired for a street-car that would take me either to or near 150 Erie St. My informant said there was no street-car line that way, but that it was only a little way from the Lakeshore station, and that we could easily walk it. He indicated with his hand the direction we were to take. Now, I had made up my mind I would make quite a lot of inquiries—more than I really needed to, for that matter, in order to find out what I could about Miss Mary E. Remington, and of the work she is doing. I first asked two boys how far we were from 150 Erie St. As the direction was a little complicated one of them asked me whom I wished to see there. I said I wished to see Miss Remington.

"Oh! that is all right if you want to see her; but you had better go this way."

Then he told me where to turn, etc. Then I asked a man with a big rubber coat on, well bundled up. When I gave the street and number he said:

"Are you going to Miss Remington's?"

I assented.

Then he added, as he looked myself and companion over:

"Why, your shortest cut would be down Canal St.; but you stand a big chance of being robbed there. Look here. I will go with you and show you the way."

I told him he need not take all that trouble, but he said it was all right. Other inquiries of a like nature were made. When I asked some of the boys if they knew Miss Remington their faces brightened up as one of them said, "You bet." The other replied to the effect that she was one of the best women in Buffalo.

Pretty soon we came in sight of a large five-story building besides the basement. In large letters on the bricks across the side facing the canal were the words, "Remington Gospel Settlement." This was somewhat of a surprise to me—yes, it was one of my "*happy*" surprises. I knew something about how Miss Remington had been struggling against great odds, and battling with sin and Satan almost empty-handed. I knew how she had, with her frail strength, engaged in what you might almost call hand-to-hand conflicts with the powers of darkness. But I did *not* quite understand how every boy on the street *knew* her, and seemed to feel a manly pride in speaking her praise; but I understood it afterward. This big building she occupies, besides furnishing her various school-rooms that I will tell you about later, furnishes homes to something like fifty families of Italian people. Of course, each family has only a small apartment. Miss Remington is not only a friend and benefactress to all these families, but she is likewise on friendly terms with the men, women, and children of the whole of Canal St. in that part of the city. As the man said to us, it is not always safe to go through that part of Canal St., even in broad daylight; but again and again I was assured I could go *anywhere*, day or night, in company with Miss Remington, and would meet with civil and respectful treatment everywhere. Our visit was made Saturday evening. During that evening there was only one exercise—a class in shorthand. Sunday morning, as I looked out of the window I saw across the street an old railroad building that had an inscription something like this: "Free Kindergarten School." I asked Miss Remington if she had opposition in her work.

"Oh, dear! no—not right over there. Those are the quarters I occupied before we came over here, and the sign has not been removed."

During the forenoon we attended church services in company with Miss Remington. I was rather glad to see her drop her multifarious duties and go to church, even if she does have a church of her own on every day of the week. After dinner I expressed a desire to see the empty schoolrooms before the children came in. Supt. Wadge went around with me. When we got to the door of the Sunday-school room a great crowd of children were flattening their noses against the window-panes, and rattling on the door to get in. Mr. Wadge kindly explained that it was fully an hour and a half before the Sunday-school would open. But it was raining, and they begged him to let them

come in and sit down. He told me he was sorry, but it would not do. The room would be filled up in no time, and I found out afterward that it takes all the ability and sometimes pretty much all of the muscular strength of a dozen or more teachers to keep those "street Arabs" in any kind of decorum.

Almost all of these people are Italians. Now, there has been some prejudice against Italian emigrants. I found it especially so in New Orleans; but my mind has changed a good deal since the experience of that Sabbath, regarding the inhabitants of sunny Italy.*

There were different rooms for children of different ages. But the room where I was asked to take a class I should think contained between two and three hundred, and the uproar was like "the sound of many waters." The class assigned me was near the door. I made up my mind almost at once that it was not much use to talk about the international lesson. They had not studied *any* lesson, and did not propose to. I told them I was a stranger from Ohio, and asked questions about Miss Remington and the school, and finally asked the boys what they worked at week days. The largest boy in the class said they were mostly newsboys. I asked some questions about Buffalo, then told them of the "carnival of crime" we are fighting to keep down in Cleveland, near my home. I asked them if Buffalo was having the same siege. Now, I hardly need tell you there has been for years past a sort of rivalry between Cleveland and Buffalo. These boys pretty soon began to mention the advantages of their own city; and as they assured me that Buffalo was a better place, from a moral point of view, each newspaper boy straightened himself up and put on a more gentlemanly demeanor. He was going to demonstrate to an Ohio man that Buffalo was at least a *respectable* city, and that that *school* was a respectable and well-behaved one. In fact, they discussed with animation this problem of crimes as if they might be one of the "city fathers." Only God knows whether or not they may *not* some time help hold up righteousness and put down iniquity in the city of Buffalo.

After the school was out, Mr. Wadge

congratulated me on having held the attention of the worst class in school better than their teachers usually succeeded in doing; and Miss Remington informed me later that the large boy (the worst one in the lot) wanted to know if the Ohio man would be there in the evening. Of course, I was only too happy to say I would be at their service. Somebody wanted to hear me talk about bees. I gave the boys some of my early history—how I felt that God called me, even when I was very small, to the study of insects. Then I spoke of the stories in the newspapers about manufactured comb honey. Said I, "Boys, the world is now making great progress in the way of invention and discovery; but do any of you believe that mankind will ever succeed in manufacturing *strawberries* just as good as those that grow on the vines?"

They came out very promptly, declaring that strawberries could not be manufactured. Then I explained to them that, in a like manner, the art of man would never succeed in manufacturing comb honey that would pass at all for the genuine made by the bees.

"By the way, boys, do you know any thing about strawberries? Do you ever pick them in the fields?"

At this so many hands went up that I thought they were telling me fibs; but Miss Remington assured me afterward that it was all true. She said that, in winter, they live in the city, and rent rooms in her building and other buildings; but when it comes time for working in gardens in the suburbs, they move out into the fields, whole families coming and camping out, while they pick strawberries, weed onions, and do any thing else the farmers want them to do. So they told me the truth when they said they knew all about strawberries.

During my talk there was a constant running fire of comments and questions. Miss Remington and the teachers tried in vain to restrain the boys; but I told the teachers to let them talk—in fact, I rather enjoyed having an audience that showed by its responses that they caught on to not only every word and idea but their buoyant imaginations supplied a good many things that I had not thought of, and *should* have never thought of. At the close of my talk I assured them that God had a special place, or a call for every single boy or girl in that crowd, and the great thing in this life is to find just *what* God has fitted us to do *best*. I pointed to Miss Remington, and said, "This good woman right here has had a *peculiar* call. God called her in a different direction from what he has called any of the rest of us. Boys, can you suggest to me what he called *her* to do?"

Almost instantly the reply came from different parts of the room, "He called her to look after us boys;" and I honestly believe that all try to show by their lives that they believe what they said.

Just as I was leaving the speaker's stand, some boy wanted to ask another

* By the way, shall we not all remember that Marconi is an Italian? I know America has been in the habit of claiming that we are head and shoulders in advance, especially in science and great mechanical developments, of the rest of the world—but just now that young athlete in electrical science (and I rather suspect in almost all other sciences as well) is talking across the ocean, and that *without a wire*; and just as the news came flashing through our daily press, a most disgraceful and humiliating report followed it, to the effect that the proprietors of the Atlantic cable (I hope they are not Americans) were trying to serve an injunction on him because they claim they had a "patent right" on using electricity across the ocean. Think God there is no patent on the water we drink nor on the air we breathe; and the idea that any person or corporation has a monopoly of the space above, in the waters or under the waters, or *through the solid earth*, to prevent this young scientist from sending his vibrations unhindered, seems to me the biggest piece of absurdity the world ever saw.

question. His teacher was inclined to hush him up; but I begged her to let him tell what he had to say. He said, "Mr. Root, can you tell us all about how to make macaroni and cheese?" At this there was a shout all over the room. When the uproar had subsided a little I said, "I am sorry to say, my young friend, I can not tell about these things. I know something about strawberries—in fact, I have written a book about how to grow them, and I know quite a little about bees; but I do not know about these other things you mention."

Now, if you wish to know more about the Remington Gospel Settlement, write to 150 Erie St., Buffalo, and Miss Remington will send you a report of their work. In conclusion I wish to make some extracts from that report. I have selected the branches that appeal most to my sympathies.

Keeping the girls from the street, or worse places, and teaching them things which will be of use all through life, we consider a very important part of the work. They thoroughly enjoy sewing, and most of them would like to begin on dresses. We do not wonder at this desire, after seeing some of the dresses they have to wear. They are expected to work on aprons or under-clothes until they can do fairly good work. Among the teachers are three dress-makers, and they have had their hands full teaching the girls to cut and fit their own dresses. Often a girl supplies her own material, which she brings to the class, and cuts it out, takes it home to sew, and brings it again the next week for a little more help. The girls try to learn all they can, for they are anxious to be able to make their own clothes at home, and some of them have done exceedingly well at this winter.

When we supply the material, the girls pay four-fifths of the cost, and are required to finish the garments in the club. We have 72 names on the roll-book, and the girls have all been very faithful in attendance.

There has also been a class in knitting, in which several of the girls have learned to knit the mittens that will keep their hands warm next winter.

At one time, Mrs. H. H. Boyce very kindly gave the older girls a course of lessons in cooking, which proved very delightful and beneficial. They practiced at home what they were taught in the class, as the recipes selected were for articles not expensive, yet very palatable and wholesome.

This year the work closed with a sewing-contest, which lasted two nights, and caused great interest among the girls. Each member of the class made a model apron, showing the best she could do in button-holes, gathering, hemming, etc. Prizes were awarded for the best work, and those who were not so fortunate as to receive one made themselves happy by representing books at the "Library Party," which followed.

KITCHEN GARDEN.

The usual work, dish-washing, bed-making, etc., is carried on; but the little ones love best to set the table and play "The Smith Family."

"Teacher, what a lot of things you put on your table," remarked one little maid, who enjoyed the appearance of the clean cloth and dishes. Another child marvels at what she calls "the little towels," and never fails to report any unfortunate member of the Smith family who fails to use her napkin in the right way. A great delight for the children has been the stories told by the teachers. One little girl gives her own version of what was told at the previous meeting, and then the class is rewarded by a new tale. Besides the pleasure which they give, the stories have helped in another way, for they are sometimes used, as the teachers have learned to keep the baby quiet and amused for a while at home, and so relieve some tired mother.

Baby, who has not yet joined the class, sometimes has a stoic sister of six or seven, who saves, for the little one at home, her bit of candy or a caky, or perhaps shares it with a teacher unlucky enough to have been skipped when the evening's treat was passed around.

The children manage to spend a happy evening in work and play, and are as easily governed as seventy-five or one hundred small, live creatures put into one room could be expected to be.

MANUAL TRAINING.

April 1, 1901, closed our third year of work in the manual-training department. During the three years we have endeavored to make a careful study of the conditions and problems confronting us, and by judicious experiments to discover the method best suited to our needs.

Our lesson-periods have been ninety minutes, one evening each week, from October to April; our equipment provides for twelve boys, using the Rochester desk top, designed by Prof. Murray. Our classes have been made up of boys from about nine to fourteen years of age, including American, English, Irish, Hebrew, Italian, French, German, and Polish nationalities; and the subject-matter has consisted of exercises in wood-working, ranging from knife-whittling in thin wood to the construction of objects involving the simpler joints, elementary geometrical drawing, and some Venetian bent iron work.

We have endeavored, as far as possible, to introduce no abstract exercises, but to make the work interesting to the boys by selecting for each model a finished article.

Our work, under the conditions that obtain here in the settlement, differs in almost every way from the work carried on in public schools. Many of these boys, living as they do in tow-path shanties, house-boats, or ill-kept tenements, exhibit evidences of arrested development. Many things intelligible and interesting to the average schoolboy do not seem to appeal in the same way to these children; consequently our public-school courses and methods could not be used except by extensive modification, and in some cases not at all.

Working under the conviction that the first thing necessary is to secure and retain the interest of the boy, we have from time to time been led to discard an idea or model or method that did not seem to work toward that end. The chief aim at all times has been to produce results in character-building, while the specific results in models and in hand skill have been of distinctly secondary importance.

SHOE-REPAIRING.

Knowing that many of the men in our neighborhood repair their own shoes in a rude way, we asked the boys if any of them would like to learn to do it properly. So many applied for admission to the class that we had to select those who behaved the best, as only twelve could be taught at one time. As all the boys in this class were Italian, and many could not speak much English, we engaged a first-class Italian shoemaker, Mr. Louis Barone, and the class has done remarkably good work. They have not only mended their own shoes but have brought shoes from home to repair, and have mended for some of the other children who attend the different classes. Shoes that are sent in, very often need mending, so they are put in the repair shop, mended, and then sold in the sales which we usually have each month. The boys have done very nice work.

THE MOTHERS' MEETING.

The meeting is scheduled to open at two o'clock, but nearly every week many of the women are at the door at half-past twelve or one o'clock, and hardly ever a woman is later than half-past one. They all seem to think this is the pleasantest time in the whole week to them. A great many of them work out by the day, but they will not work on Wednesday if they can possibly avoid it.

During the first three months of the present year Mrs. Boyce gave cooking-lessons, and they all enjoyed them very much. The lessons were all such that the women could go home and make practical use of what they had been taught, and the next week they would tell of their difficulties, if they had any, and get pointers as to what was the trouble.

If Mrs. Boyce could see the improvement in some of the meals that are served in the fifty homes that she came in contact with in giving the lessons, she would feel fully paid for her labors.

All the material used in connection with these lessons was donated, which was a great help.

After the cooking-lessons were discontinued the women returned to their usual occupation of sewing. They make up garments for themselves and their children, and pay for them, when finished, four-fifths of the original price. The little sales, as referred to in another place, supply the other fifth, so that this branch of the work is practically self-supporting.

Each gathering is closed with a short devotional service, prayer, short Bible-reading and singing, and all the women stay to this service. These meetings are

continued throughout the year, excepting for about a month in the summer.

As often as possible we give them light refreshments, consisting usually of coffee and graham bread, of which they are very fond. They say they would rather have it than cake, and it is much easier and cheaper to make.

WOOD-CARVING AND MANUAL TRAINING FOR GIRLS.

Two years ago we tried the experiment of having a manual-training class for the girls. As we had tools for only eighteen, the others who wanted "to be" in it were obliged to wait until some one dropped out, but no one seemed to want to drop out. They were given the same course of instruction as the boys had the year before, geometrical drawing, knife-work, and the use of tools in making small articles. The girls took great interest in this class, and some of them liked it even better than sewing, which is saying a good deal.

During the past winter the class was given instruction in wood-carving, which has been very fascinating to some of them, and they have made some very pretty articles.

SEWING-SCHOOL.

The sewing-school is divided into two departments, one for the older children and the other for the children too young to sew, from seven years old down to six months or younger, for, of course, every little girl must bring the baby.

These little children, of whom there are about 125 present each week, are in charge of some young ladies from the Central High School, who have been very faithful in their work of love, and the children are all very fond of their teachers. They have divided their department into two classes, one for the very little ones who are entertained and taught little songs and games, while the others are taken into another room and taught kindergarten sewing.

In the main room the children are first taught the stitches, and, after they can do them nicely, are given a skirt and then an apron to make. They have done very good work. Many of the children have not been absent during the whole year. It is very amusing to go to the homes and see some of the little girls making aprons for their mothers or showing them how to do it. At one place a little girl brought forward a garment and asked how to gather it and put on a band; and when she was told she turned to her mother with, "There, I told you that was the way teacher said put it on." The mother said she had to do so much other work she did not know much about sewing.

The women on the street have said to us many times, that, if there had been any such place as this for them to have gone when they were little, and they could have been taught as these children are, they would never have gotten where they are now.

PENNY SAVINGS BANK.

When the bank was first established, the people were careful not to put in very much money till they had tried drawing some of it out, in order to be sure they could get it. This feeling soon wore off, and they began to increase their deposits. We have now 248 depositors.

Some of the boys, who black shoes and sell papers, have saved as much as twenty dollars each. Often when they get ten or twelve dollars in the bank they have to draw it out to help at home—pay rent, buy coal, etc. Several of the girls who are working have also saved quite a good deal.

The very little girls and boys have saved quite large sums by depositing just the pennies that they would otherwise have spent for candy and cigarettes. Some of the youngest of these have bought shoes with what they saved.

The rule is that they must give at least one day's notice if they wish to withdraw any money. A child sometimes thinks he would like to have a little extra candy, or go to a five-cent show, and starts for the bank; but when he can not get his pennies till the next day the desire is gone by that time and the money is still in the bank.

The women of the Mother's Meeting are saving for coal, flour, etc., and during the past year have bought 186 barrels of flour and 290 tons of coal with money they have saved in the Penny Savings Bank.

A FEW INCIDENTS IN THE WORK.

When we took the house every room in it needed papering and painting, as they were in dreadful condition, but we did not have the money to do it. A little over a year ago a gentleman gave fifty dollars to help along the work in any way needed, so we thought it could not be used to better advantage than to clean up

the house a little. I told the tenants if they would tear off all the old paper, clean the windows and paint, and kill all the bugs, I would have the rooms papered and painted for them. It was fun to see them work. When they were through they came to me, each woman anxious to have me take hers first, and each had some good reason why hers should be the first to be done. One had a daughter who was to be married, another was to christen the baby, etc. I told them I would give them a few days more and then I would take the cleanest place first. Well, the way they cleaned first was no comparison to the way they cleaned after that.

After waiting about a week I went around to see the rooms, and as soon as I started I had a crowd after me to hear what I would say. Every room was cleaned up in good shape, and I praised them all about alike, and when I got through I turned to one woman and said, "Which place do you think is the cleanest?" She shrugged her shoulders and said she did not know. I tried several, but none could tell. Probably each one wanted to say her own, but could not do that very well.

"Well, you can not tell and I can not tell," said I, "so we will begin at the top and come right down through and take you all in turn, and will have it all done quickly." This was satisfactory, so we went to work. The fifty dollars cleaned the two top floors, on which there are twenty two families. The rest of the money came from other sources. The house has never been so dirty since, and one more cleaning will put it in very good shape.

One small kerosene-lamp in each large hall did not furnish a very brilliant light. In fact, a stranger would not have cared to try to find any one in the evening. We thought that, if the halls were lighter, they could be kept cleaner. On making inquiry we found that electric lights would be cheaper than gas, although the cost of either would be about forty dollars, and the question was, how could that much be spared from the work?

A lady in Medina, Ohio, knowing that we wished to do this, said that she would give five dollars, and that her father said that, when it was all provided except the last five dollars, he would give that. A gentleman here in the city said he would give the next to the last five dollars. One and another gave a dollar till we finally had the money in hand, and the whole place was soon brightly lighted with electricity. When the men were putting in the lights several of the women were frightened, and wanted us to take them right out; but in a day or two after the lights were turned on, they came again and wanted us to put them in their rooms. It has had the desired effect, to make them keep the places clean. A light in a dark place has a wonderful effect.

A great many people say that one thing that keeps people poor is that they do not know how to manage.

While we will admit that this is the case a great many times, still there are exceptions, and here is one of them. One of the women at one of the sales bought an old, ragged, rusty coat and a toboggan cap. A few days after she came in to see about getting work, and brought her little boy and girl with her. The little boy had on a coat made from the old coat, which had been washed and pressed and turned, and a little sweater, which she had made from the toboggan by cutting off the top and binding it, and cutting out some arm-holes and binding them. To be sure, it had no sleeves, but with his little coat on it looked very well. The little girl had on the top of the old toboggan for a cap.

This shows only one of the many ways that the women use the things which they get in the sales. Nothing ever goes to waste. They are very proud to come and show us what they have made out of some old thing that it did not seem possible could be of any use. We have been able to have these sales, during the last year, about once a month.

In the spring and fall we have a hat sale, and our friends send us their old hats and trimmings, and then all who can come and help trim do so, and we sell the hats at from one cent to twenty five cents each. Several of the milliners have sent trimmings and hats, and some of them have also given their services to help trim for the sales.

As the receipts from the Mothers' Meeting are only four-fifths the actual cost of the material, these sales make up the deficit.

In closing, permit me to state that Miss Remington has undertaken to purchase outright the great building she occupies. It was fitted originally for a hotel. Before

she got hold of it, it was used for saloons. They have the low price on it of \$10,000. She has already paid \$3000; and, God helping her through the hearts of the people, she expects to pay it all in a short time. The property would bring many times the price mentioned were it not for the reputation the locality has held for so many years; and Miss Remington is fast bettering the name that has so persistently clung so long to the junction of Canal and Erie Sts.



THE JESSIE STRAWBERRY; ITS ABILITY TO STAND DROUTH, ETC.

Along the latter part of July I was trying to ride up a pretty steep hill right opposite the home of William Hineforth, near our Michigan home. When I just began thinking I was too tired to propel the wheel any further up so steep a grade my eye caught sight of some beautiful strawberries sparkling among the green leaves. In fact, the strawberry-rows ran clear up to the road. When my wheel tipped over, somehow or other it tipped toward the strawberries, and I was just about refreshing myself with the tempting beauties when it occurred to me I should be setting a bad example; therefore I left my wheel (and the berries too), and went over and asked permission of Mr. H. to sample his beautiful berries so late in the season. I noticed on the way that every fourth row in his berry-patch was bright and green, while the three rows between were almost dried up and worthless. Said I: "What berry is this, friend H., that stands the drouth and gives you berries worth picking so late in the season?"

"Why, don't you know, Mr. Root? That is the Jessie. You see I planted three rows of Warfield, and one of Jessies for fertilizer. The Warfields could not stand the drouth, and are dried up, as you see; but the Jessies keep right on growing, and bearing fruit. It certainly is a wonderful object-lesson in regard to the ability of the Jessie to stand drouth."

Now, some of you may remember that I assisted considerably in introducing the Jessie. Well, I have never noticed on our grounds that it stood the drouth better than other varieties. Perhaps this is only another peculiarity of location. Yes, I sampled the berries. Now, if you never rode a wheel up a long hill in the month of July, and got tired and thirsty, and then sort o' accidentally tumbled over into a strawberry-patch — why, unless you have been through such an experience, you have never yet *realized* what a wonderful gift God made when he gave strawberries to his children. After I came back I discovered

Mrs. H. and two girls picking berries. I had not noticed them before; but suppose I *had* just jumped off my wheel and helped myself to those berries, as I was tempted to do, without saying a word to anybody. I know it is a small matter; but how much better I felt, and how much better the berries tasted, after I had *permission!* I do not remember now just how much the berries brought a quart; but those Jessies brought a pretty big price after everybody else had quit bringing strawberries to market.

PLANTING POTATOES TOO CLOSE TOGETHER AND PLANTING THEM TOO FAR APART.

Last fall at potato-digging time, Mrs. Root and I were taking a ride across the country in the Traverse region. At one point our road took us right through a potato-patch, and men and boys were digging potatoes close up to the wagon-tracks. Just as soon as I got into that potato-field my eye quickly caught on to the fact that the potatoes were larger, finer-shaped, and more of them, close up to the wagon-tracks on both sides. Where they had not yet been dug the vines were larger, stronger, and thriftier. I stopped the horses and said something like this:

"Look here, friends, do you pick out your nicest potatoes and put them close to the road on each side, just to make people stare, or do they *grow* that way?"

"They grew just as you see them, stranger. Potatoes always grow bigger next to the road, because they have more room, I suppose. You see there are no potatoes on the other side to rob them of fertility and water when there is a scarcity of rain. We were talking about it before you came along; and I believe it is generally the case in this region if not in other places."

I suggested that perhaps the road was traveled enough so the manure the horses had dropped in years past might have made the difference, but they thought not. I have wondered many times why the people in that region planted their potatoes so much further apart than we do in Ohio. You know the men who sell the hand potato-planter figure only five or six bushels to the acre, while we use eight or ten, and sometimes twelve. Now, their potatoes are three feet apart, and sometimes more, and planted so they can be cultivated both ways. But I am sure *early* potatoes could be planted much closer. We had some beautiful Early Michigans last year, and they make only a small top, and are quite early. I was not present when they were planted; but after they came up I said there might have been a hill of potatoes half way between, one way at least, and the whole patch would have yielded almost as many to the hill. But this object-lesson of the potatoes along by the road would rather indicate that there *is* danger of getting them too close in that region. I asked if potatoes always yielded better clear around at the outside of the field, and I was told this was not always

the case. The outside row of potatoes is apt to be ground that is not plowed and harrowed so thoroughly, and oftentimes does not get as good cultivation; and there is more or less tramping on them in turning around. Where the road ran through that potato-patch I am inclined to think they plowed up and fitted the *road*, field, and all. I judged from the looks of things. I suppose they left a vacant strip just wide enough for a wagon to get through. There was certainly no place for one wagon to pass another in that whole potato-field. I am inclined to think that, on very rich ground, well manured and thoroughly fitted, we may profitably put potatoes only three feet apart, and from a foot to fourteen inches apart in the row—that is, we can do that in Ohio, say after we have turned under a heavy clover sod. In the Michigan sandy soil, especially where there has been no clover turned under, and no stable manure was ever used, possibly it may be profitable to put the potatoes three feet apart each way. You see this would make only *half* as many hills in the field; but putting them so far apart would certainly get larger potatoes, and probably more in a hill. If one single stalk is going to give 15 good-sized potatoes, however, as I secured near friend Hilbert's, we can well afford to give such a hill plenty of room, say as we have it in putting the hills three feet apart each way. Now, friends, it is quite likely we sometimes lose half a crop or less by putting our potatoes *too* far apart. At other seasons and in other localities, perhaps we lose almost as much by going to the opposite extreme. Where we get them too far apart we usually have the largest and the most potatoes to the hill. Let us each and all test the matter for *our own fields*.

GINSENG AND GINSENG-GARDENS.

Since what I have said in regard to growing ginseng, I have been assured several times that it is not so difficult to grow—in fact, I find it has been growing in considerable quantities on my place in Michigan. One day when I was at work at that spring I have told you about, a big Indian came and sat down and very quietly began watching me. He did not seem to want to talk; but an “Injun” was something of a curiosity to me, and I *made* him talk. He had a sort of sack hung around his neck. I asked him what he had in it. He then pulled out a big handful of fresh ginseng roots just dug. To get acquainted I gave him 25 cts. for the biggest root in the lot. Then I asked him if he found them growing in *my* woods. He nodded his head in the affirmative. I then asked him if he could show me the growing plants. He did not want to answer, but finally admitted he could. I offered him 25 cents more to show me the growing plants, so I could see what they look like. He said he would bring me one, top and all; but when I wanted to go with him and see him dig them he shook

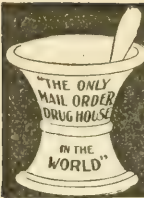
his head. Finally I agreed to give him 25 cents to bring me a whole plant, top and all. He disappeared in the bushes, and came back in a very few minutes with a root in one hand and a top in the other. Some of my friends told me afterward that the Indians remember the particular spots where the ginseng grows, and they get roots there more or less every year, leaving the small ones to grow until they are large enough to dig. He did not want me to know where the ginseng-patch was on my own land.

A few months later I heard boys' voices off in the woods one Sunday afternoon. I hunted them up and inquired what they were doing. I found they had collected quite a lot of little ginseng roots. The Indians save the small ones to grow larger; but those boys dug every thing, little and big. This was in October; but the little roots had a good strong sprout on each one, ready for next year's growth. Now, my ranch would be a splendid place for a ginseng-garden; but unless I could be right there every day in the year I do not suppose any kind of fence would keep ginseng-hunters out. The plant the Indian brought me stood up fully two feet high. The leaves had a beautiful glossy surface on the under side, as if they had just been varnished. The plant very much resembles sarsaparilla and some other plants having five leaves radiating from the center; but the ginseng has a very much finer and more delicate appearance than any of these other plants. In answer to my request for a report from some one who did not advertise seeds and plants, I received the following:

GINSENG-GROWING, BY ONE WHO DOES NOT SELL SEEDS OR PLANTS.

You say you would like to hear from some one who is in the ginseng business, who has not plants or seeds to sell. Mr. Benjamin Palmer, of Boydon, Crawford Co., Wis., has been in the business about six years, and he does not sell plants or seeds. I was on his patch last spring, about two-thirds of an acre. You could not tell $\frac{1}{2}$ from the rest of the hillside, except from the fence. The plants had not got up through the leaves yet, but they were there all right, about ten inches apart in the row. I don't know how wide the rows are; but where he raked the leaves off the young plants, I believe you could count a hundred in a foot square, no bigger than a darning-needle. The first ones he planted he says will grow 2 feet high. I suppose they have seeds on them. He says he lost time in not knowing how to manage them at first, or otherwise he would have had more plants. I don't think he cultivated around the plants except to spade around when he planted them. May be they do better that way. They have to be more or less in the shade of the trees. He thinks there is lots of money in the business if a man can hang on for twelve or fifteen years. Woodman, Wis., Oct. 16. JOHN MURRAY.

I believe the big prices for books on the subject have pretty well gone by. The best thing I have found for a small sum of money is one I have mentioned before, by J. W. Sears, of Somerset, Ky. The price is only 10 cents (we can mail them from this office). The high prices for plants and seeds have also come down quite a good deal. In fact, on page 836 you will find seedling plants advertised as low as 3 cents each, and seed-bearing plants for only 12 cents each.



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and can save you 15 to 75 per cent on every article you select from our Illustrated Drug Book. It contains a list of 15,000 drugs, medicines, family remedies, surgical instruments, sick room appliances, trusses, veterinary preparations, flavoring extracts, paints, oils, etc. Over 1500 illustrations. Quality and purity of every article guaranteed by us. Drug Book costs us \$2 each. We send it for 10 cents—just enough to pay mailing charges. We refund that amount on the first order you send us. Get a copy at once and keep it for reference. You can never tell when you will need help. We are: "The Only Mail Order Drug House in the World."

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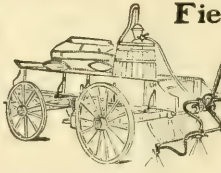
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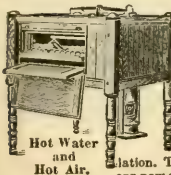
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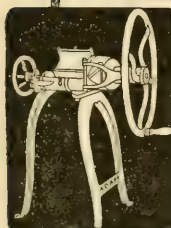
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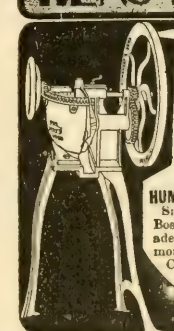


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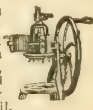
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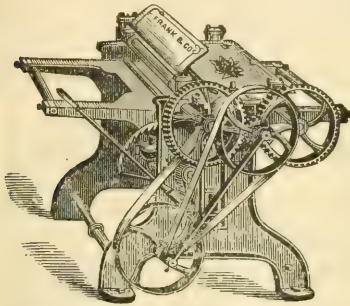
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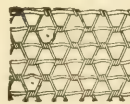
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We never in all our experience had so many carload orders booked ahead as at the present time. They have been coming in so much faster than we have been shipping that we were twenty cars behind a few days ago. We have shipped five or six the past week, and should get 12 to 15 more off this month. We did not get the catalog completed before we had to go to press with this issue, but it will be completed immediately after.

HONEY FOR SALE.

We are having a fair trade in honey, both comb and extracted; but with the stock on hand we could handle more orders to advantage. We shall be pleased to hear from those in need of honey, either comb or extracted. In spite of what some of the papers are saying about us, and about adulterated comb honey, we guarantee the honey we furnish to be pure bees' honey, and we stand ready to make good our guarantee, issued more than ten years ago, to pay one thousand dollars for a pound of manufactured comb honey (made at a "factory" where such stuff is made), filled and capped without the aid of the bees.

Special Notices by A. I. Root.

Our abbreviated price list of garden seeds, etc., was crowded out of this issue, but it will be in the next.

THE TRAP NEST—A NEW USE FOR IT.

The vendors of the various trap nests claim a great deal for them; but there is one thing I think they have overlooked. A few days ago Mrs. Root found the trap nest shut; but instead of a hen inside of it there was a *big fat opossum*. He was foraging for eggs and I suppose he thought that, if he squeezed into the nest, he could in like manner *squeeze out*. But he discovered too late that the thing did not work "both ways." He had been for some time getting my eggs.

ONIONS—STARTING THEM IN HOT-BEDS AND COLD-FRAMES FOR TRANSPLANTING IN THE OPEN FIELD.

There is one advantage in this method of working that I think has never been mentioned. It is this: If you sow seed that is a year old or more you do not know whether it will come up or not, nor how perfect a stand it will make, even if some of it does come up. But if you plant this old seed under glass, and grow plants, you can take the plants, few or many; and get a perfect stand by transplanting. We have a few pounds of almost all the kinds of seed we advertise, which we will sell at half price, to be used for planting under glass. It *may* grow just as well as any seed—in fact, it usually does when it is not more than a year old; but, of course, we would not want to sell it without saying that it is last year's seed left over. New seed of Yellow Globe Danvers and Red Wethersfield is 75c per pound, so this old seed will be only 37½ cts. If you wish to sow it under glass it will be time pretty soon to get it started, especially if you want to catch the early market and get a big price for your new onions. Onions, like potatoes, are now "way up," as you may have noticed.

THE GIANT GIBRALTAR ONION ONCE MORE.

The big onion I mentioned on page 961, Dec. 1, is still on my table, perfectly sound and firm, not even a sign of a sprout. This has been all this time in a warmed-up office 70 degrees, and sometimes more. Now, if these onions will keep like this until the 1st of January, even in a hot room, there is a small goldmine in starting these onions under glass, and planting them out in the open ground. Here is what Tusko Greiner says about them in a recent number of the *Farm and Fireside*:

H. L. of Millersburg, Ohio, says: "I must thank you for your article on Gibraltar and Prizetaker onions. I bought this year a package of the Gibraltar onion, sowed in a hot-bed, and transplanted, and gathered three bushels of the finest onions I ever saw. The Prizetaker did not do so well. I shall try onions on a larger scale in 1902." I can only urge my friends to grow more, and as emphatically as ever, to make a trial with these fine sweet Spanish onions, and of the new (transplanting) method of growing them. If done with reasonable care, such trial will prove highly satisfactory. I grow the Gibraltar for early sales and for table pleasures during the earlier part of the fall and winter. The Prizetaker onions, large, but not reaching the extraordinary size of the Gibraltars, are far better keepers, and I must have them to be on hand during the latter part of the winter and up to spring. So I want both kinds, and I believe you will too when you have learned all their good points.

THE NEW HAND POTATO-PLANTER.

Last year we sold several hundred of these new planters; and although I have asked for reports as to how they answered the purpose in different localities, very few have come to hand. In the Traverse region they are almost if not quite the only tool used for planting potatoes, and everybody succeeds with them. Almost every man or boy who come across handles these potato-planters as handily as he would an ax. But here on our own premises there was a prejudice against them, and only one or two of our boys persevered with them long enough to get the hang of the tool. One great trouble is, our clay soil is seldom soft and fine enough to get the planter down a sufficient depth; but even if you have to make a furrow, an expert with the machine will put the pieces in the furrow much faster and more accurately than he could by any other method. Now, I wish you who have these tools would tell me briefly how you like them. I do not wish to sell any thing, much less *recommend* any thing that is not a real benefit to the purchaser. Just put it on a postal when you are writing us, or add a postscript to your letter.

One Dollar Does the Work of \$2.00.

We call attention to prominent advertisement of The Ohio Farmer in this issue under this heading. It interests every farmer.

A New Game.

A new guessing game is to show some illustration, or give a name, either of them made familiar through advertising, and guess who uses the illustration, or what line of goods is handled by the advertisers named. If one were to mention the name, *Shumway*, almost every one would say at once, "Seeds," so thoroughly have the two been advertised for more than thirty years. Mr. Shumway's announcement appears elsewhere in this issue, and is headed "Good Seeds Cheap." It contains a special offer, and mentions his new catalog. Write for it to day. Address R. H. SHUMWAY, Rockford, Ill., and mention this paper.

Seed Time and Harvest.

A good time to think most seriously of the harvest is seed time. The decision you make then will determine the value of your crops later. The growing competition in seed-selling is an increasing temptation to unscrupulous dealers to make extravagant claims for their seeds, both in price and producing qualities. The wisest farmers are those who are influenced most by what experience has proven to be good and true. Thousands of seed-sowers in all sections of the country sow Ferry's famous seeds year after year, and have the satisfaction of good harvests to justify their continued faith in the Ferry firm. They pay a few cents more at seed time, but realize many dollars in better crops at the harvest. The natural consequence of this confidence is an ever increasing business. D. M. Ferry & Co. sent out last year more seeds than any other seed-house in the world. The 1902 catalog of this house is now ready and will be found a useful guide in selecting the choicest seeds for the farmer, the truck-gardener, and the flower-gardener. It is sent free, on request. Address D. M. Ferry & Co., Detroit, Mich., and mention *Gleanings in Bee Culture* when you write them.

Kind Words from our Customers.

Don't stop *GLEANINGS* until I so order. The old gentleman's Home Talks are worth the price of the paper many times over. S. AVARD.
Leesville, La., Dec. 23

I noticed in GLEANINGS a few weeks back where some of the friends were inclined to roast A. I. R. for his Home Talks. Keep them coming, Mr. R. Your Home Papers are fire, and I enjoy them the very best all through. I am no Christian, and seldom go to church; but they are better than a sermon from a college graduate, as they come from a true Christian heart, in my estimation. When I stop GLEANINGS, it will be when I have not the \$1.00, not for their sermons on righteousness, even though a bee-journal.

Centralia, Wash., Nov. 27.

A SUBSCRIBER.

THE GERMAN WAX-PRESS

For over twenty years past I have had to render up old combs or cappings in larger or smaller quantities, and my experience has been extensive, for I have tried faithfully almost every known method to get all the wax out, but have never succeeded to my satisfaction until recently. I got of you a German wax-press, that comes nearer accomplishing that object than anything I have ever tried. I am more than satisfied with it, for, if used according to directions, there is little if any wax left in the refuse. Any one used to the old methods will be astonished at the results obtained. In this press you have given those in need of it the best thing, to my mind, you have ever brought out, and I really believe all who try it will pronounce it a real treasure. There are other points of advantage that I could mention, one of which is its perfect safety—no boiling over and setting fire to every thing, and it can be left alone without care for quite a time, and every thing can be kept neat and clean, and it occupies very little room.

E. T. FLANAGAN.

Belleville, Ill., Dec. 12

CONVENTION NOTICES.

The Wisconsin State Bee-keepers' Association will hold its annual convention in the State Capitol at Madison, Feb. 5 and 6, 1902. The convention promises to be largely attended. Excursion rates of 1½ fare, good for all of the first week in February. All are invited to attend.

ADA L. PICKARD, Secretary.

N. E. FRANCE, President.

The California State Beekeepers' Association will hold its annual convention at the Chamber of Commerce, Los Angeles, on Jan. 15 and 16, 1902. We will try to have a good program. Come, and exchange your bright ideas with your neighbors, and get some of the moss rubbed off your back.

J. F. MCINTYRE, Sec.

G. S. STUBBLEFIELD, Pres.

To make cows pay, use Sharples Cream Separators Book "Business Dairying" & cat 288 free. W. Chester Pa

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your advt. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange Dadant uncapping-cans, Root's No. 5 extractor, and other supplies, for honey or wax. O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange a Columbia talking-machine with 15 records, and gen'l mdse., for bee-supplies or empty worker-combs in Hoffman frames; also want to buy some bees, but must be cheap and near here. PRESTON STORE & PRODUCE CO.,

Dority, W. Va.

WANTED.—A buyer for my 80-acre tract of land in Crawford Co., Mo., at \$10.00 per acre, one-half cash; balance on time payment. Address

LOUIS WERNER, Edwardsville, Ills.

WANTED.—To exchange a National cash register, check printer, in first-class condition, for bees. GEO. SHIBER, Franklin, N. Y.

WANTED.—To buy a second-hand saw mill, heavy (top and bottom saw). 216 Court St., Reading, Pa.

WANTED.—To exchange 50 T supers, mostly unused; 25 section-holder supers, unused; 25 second-hand supers, 25 eight-frame hive-bodies, many new; 100-egg incubator and brooder, 10-in. fdn. mill, Novice extractor, Porter bee-escapes, all-zinc honey-boards, queen and drone traps, zinc-perforator for making queen-excluding zinc, greenhouse or hotbed sash, made up or in flat; a large quantity of 8x10 glass, also odd sizes. Send for prices. Wanted—queens, honey, wax, St. Bernard dog, or offers. J. A. GREEN, Ottawa, Ill.

WANTED.—To sell or exchange a cranberry meadow especially located for cultivation, combining essential facilities necessary for control, and 25 years practical testing with excellent success, yielding constantly 5 to 100 per cent on \$100,000, computed on genuine experience. H. A. LORY, Day, Minn.

WANTED.—To exchange 160 acres heavy timbered hardwood land in N. E. Ark. First-class corn, cotton, clover, and fruit land; foothills of the Ozarks; 6 miles from railroad; for suburban home with small orchard, in middle Eastern State. Tell what you have. J. E. DART, Connesauga, Ga.

WANTED.—Good extracted honey. Any kind of cans, so price is right.

W. S. RITCHIE, Corona, Calif.

WANTED.—To sell 14¼-acre farm, 40 acres in cultivation, two good springs, \$700; 15 head cattle, \$150; 17 sheep, \$25; 5 English Berkshire hogs, \$15; 24 colonies bees in 8-frame hives, \$60. Will take \$50 for the lot, all cash, or will sell farm alone. Good bee-range, mild climate, 7 miles from town of Fordyce. Reason for selling and further particulars given on application. D. R. FEASTER, Fordyce, Ark.

WANTED.—To sell one-half interest in a paying bee-business, 3000 colonies.

R. T. STINNETT, Mesilla Park, N. M.

WANTED.—To sell a two-basket Ferris wax-extractor, or, one extra basket, nearly new, for \$8.00; regular price, \$12.00. We can guarantee this machine to be in good order, and at the price we offer it, it is a bargain. THE A. I. ROOT CO., Medina, O'io.

WANTED.—Fifty to 100 colonies bees, March or April; South preferred, near Brunswick or New Orleans. I. J. STRINGHAM, 105 Park Pl., New York.

WANTED.—To sell three apiaries, permanently located, with good honey-house; 3 extractors and super-combs complete; 285 colonies in chaff hives and packing-boxes, located west of Ithaca, N. Y.

W. L. Coggsall, West Groton, N. Y.

WANTED.—To sell Rocky Ford cantaloupe seed. Seed of these famous melons postpaid, 40 cts per pound. Choice selected stock.

H. F. HAGEN, Rocky Ford, Colorado.

WANTED.—A good reliable man to take half interest with me in second apiary; must have the necessary cash, say \$300, and be well acquainted with the bee-business. Address W. S. COOPER,

202 Navarro St., San Antonio, Texas.

WANTED.—Position as bee-keeper, South or West; long experience and good reference. Address GEO. N. MOBLEY, Walker, Mo.

WANTED.—To sell or exchange 200 Hoffman frames filled with combs; also Dovetailed hive-bodies, bees, and fixtures, and two dozen Persian pea-fowls—a bargain. B. J. Cross, Cherokee, Alabama.

WANTED.—To sell or exchange gasoline-engines for all purposes—stationary, marine, bicycle, etc.; want machinery of all kinds.

Robert B. Gedy, LaSalle, Ill.

WANTED.—A dovetailing machine for making hive-bodies; also a two-frame Cowan honey-extractor.

W. N. CANNON, Greenville, Ala.

WANTED.—To sell or exchange three saw benches with saws (\$15 each), one ditto (\$20), machines for boring, matching, sanding, dovetailing, and press-cutting (\$5 to \$15 each), leather belting, shafting, pulleys, etc., at half price; all in good running order; will take honey or offers; will take 10 per cent less for cash. Write. C. W. COSTELLO, Salford, Maine.

Get the Best Queens.

Evansville, Ind., Sept. 27th, 1900.

The Jennie Atchley Co., Beeville, Bee Co., Texas:

Dear Friends:—It gives me great pleasure to forward you this unsolicited testimonial regarding the merits of Atchley queens. The three (3) dozen queens purchased of you have made an excellent record for themselves. Not an Atchley queen among the twenty colonies lost during the severe drouth in July. I've bought queens from many breeders; and although the present crop is exceedingly short, the tiers of supers show where the Atchley queens are, and speak volumes for your method of queen-rearing. I find the progeny to be very gentle, strong-winged, uniformly marked, long-lived, of large size, and last, but not least, the best honey-gatherers I ever had. I shall want 100 more next season.

Yours fraternally,

J. C. WALLENMEYER.

Prices for Queens.

Tested, \$1.50 each; \$8.00 for 6, or \$15.00 per doz. Untested, February, March, April, and May, \$1.00 each; \$5.00 per 6, or \$9.00 per doz. Fine breeders, \$5.00 each. We have as good bees and queens as money and labor produce. We breed three-band Italians, Goldens, Carniolans, Cyprians, and Holy-Lands, in their purity, bred in separate yards 5 to 20 miles apart. If you want the best, call for Atchley's improved strains. Safe arrival guaranteed. Send for a sample copy of *The Southland Queen*, the only southern bee-paper, \$1.00 per year. To new subscribers we offer as a premium a nice untested queen in order to get our paper introduced. Catalog, giving queen-rearing and management of apiaries for profit, FREE.

**THE JENNIE ATCHLEY CO.,
Beeville, Bee Co., Texas.**

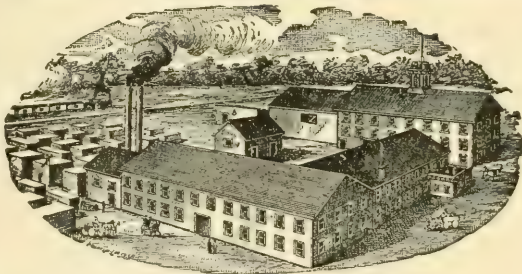
Now Ready!

Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,

Wetumpka, Elmore Co., Ala.



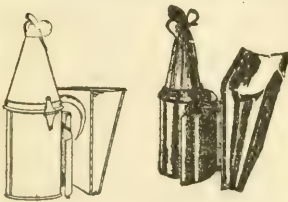
KRETCHMER M'F'G CO., Red Oak, Iowa.

BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

— AGENCIES: —

Trester Supply Co., 108 So. 11th St., Lincoln, Nebraska; C. C. Richards, 1223 17th St., Denver, Col.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used.

Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop ink drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch; \$1.10; 3-inch, \$1.00; 2½-inch 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 22 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firm ly attached to all four sides, the combs unsoiled by travel-ling or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

SAN FRANCISCO.—Comb honey, 10@12½; extracted, water-white, 6@½; light amber, 1@5½; dark, 3@4@½. Beeswax, 20@28.

Dec. 25. E. H. SCHAEFFLE, Murphys, Calif.

SCHENECTADY.—Our market has been very quiet since the holidays, especially comb honey, the demand being principally for buckwheat. There is quite a demand for extracted, and stock on hand is limited. No change in prices from our last

Jan. 8. CHAS. MCCULLOCH,
1 Eagle St., Schenectady, N. Y.

COLUMBUS.—Fancy white comb, 17; No. 1, 16; fancy amber, 14; No. 1, 13. EVANS & TURNER,
Jan. 7.

TORONTO.—Extracted honey is selling at about 9 cts. per lb., comb as follows: Fancy \$2.25 a doz.; A No. 1, \$2.00. M. MOYER & SON.
Dec. 23.

MILWAUKEE.—The market for honey is without any special features of interest to note. The demand for honey is not large. The supply is fair; the supply of fancy section should be increased, and we encourage all shippers of such. We quote fancy 1-lb. sections, 15 @16; A No. 1, 14@15; No. 1, 13@14; amber nominal 12 @14. Extracted in bbls, kegs, or cans, white, 8@9; dark, 5@7½. Beeswax, 26@28.

A. V. BISHOP & Co.,
Jan. 7. 119 Buffalo St., Milwaukee, Wis.

ALBANY.—Honey market quiet, with light stock and light receipts. Improved demand for buckwheat and dark grades of extracted, but light demand for light-colored. MACDOUGAL & Co.,
Jan. 3. 380 Broadway, Albany, N. Y.

BOSTON.—Comb honey is in good supply, and not working off as well as we would like to see at this time of the year. Prices are ranging as follows: Strictly No. 1, 15@15½; No. 2, 14. Extracted, white, 7@7½; light amber, 6½.

BLAKE, SCOTT & LEE,
Jan. 4. 31, 33 Commercial St., Boston, Mass.

DENVER.—No. 1 white comb honey, \$2.75 to \$3.00 per case of 24 sections; No. 2, \$2.50 to \$2.65. Extracted, 7@8. Beeswax, 22@26.

COLORADO HONEY-PRODUCERS' ASS'N.
Jan. 8. 1440 Market St., Denver, Col.

CINCINNATI.—The demand for honey is fair. Extracted honey is offered very freely. Dark brings 5; lighter, 5½@6; fancy, 6½@7½. Fancy comb, 15; lower grades, 12½@13½. C. H. W. WEBER,
Jan. 7. 2146 Central Ave., Cincinnati, Ohio.

NEW YORK.—Comb honey continues in good demand, with supplies pretty well exhausted. We quote fancy white, 15; No. 1 white, 14; No. 2, 13; amber, 12; dark, 10@11. Extracted, dull, with large supplies, and quotations on large lots are generally shaded in order to effect sales. We quote white, 6½@7; amber, 5½@6; dark, 5@5½. Beeswax firm, and rather scarce at 28@28½.

HILDRETH & SEGELKEN,
Jan. 9. 82, 84 Murray St., New York City.

NEW YORK.—Demand for comb honey is quiet after the holidays. Supply light; a little demand for extracted, particularly buckwheat, of which there is a meager supply. We quote the market to-day as follows: Fancy white, 15@16; A No. 1 white, 14@15; No. 1 white, 13@14; No. 2, 11@12; fancy buckwheat, 11@12; No. 1 buckwheat, 10@11; No. 2 buckwheat, 9@10; white clover and basswood extracted, 6½@7; light amber, 6 @6½; amber and buckwheat, 5½@6. Beeswax, 27@29.

CHAS. ISRAEL & BROS.,
Jan. 8. 486-490 Canal St., New York City.

BUFFALO.—Below I quote you the honey market as it is now. Fancy white comb, 15@16; A No. 1, 14@15; No. 1, 13@14; No. 2, 12@13; No. 3, 11@12; dark, 10@11. Extracted white, 6½@7; dark, 5@5½. Beeswax, yellow, 28@30; dark, 23@25. W. C. TOWNSEND,
Jan. 13. 84, 86 W. Market St., Buffalo, N. Y.

DETROIT.—Fancy white comb honey, 15; No. 1, 14; dark and amber, 11@13; extracted, white, 7@7½; dark and amber, 5@6½; beeswax, 26@27.

M. H. HUNT & SON,
Jan. 13. Bell Branch, Mich.

PHILADELPHIA.—Market on honey has been a little quiet since Christmas; supply has been equal to the demand. We quote fancy comb, 16; No. 1, 15. Fancy extracted, white, 8; amber, 7. Beeswax, 28. We are producers of honey—do not handle on commission.

WM. A. SELSER,
Jan. 10. 10 Vine St., Philadelphia, Pa.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Honey; car lots or otherwise. Will send man to receive when sufficient amount to justify, and pay highest market price, spot cash. Address, stating quantity, quality, and price desired at your station. THOS. C. STANLEY & SON, Fairfield, Ill.

Satisfied Customers,

and their numerous expressions of the superiority of my queens warrant me in continuing the arrangement of my queen apiaries in 1902 as in 1901. I have watched carefully, and have selected the queens whose colonies gave me the best results in HONEY, for my queen and drone mothers.

Yard No. 1 consists of a combination of the **Root Long-Tongued Clover Stock**, the **Superior Stock** so much Advertised by Hutchinson, and a **Selection of My Own Stock** that I have been Breeding for years, in regard to which I have the following:

Buffalo, N. Y., Aug. 31, 1901.

My Dear Victor:—Queen and nucleus arrived safely yesterday; made entrance to nucleus and allowed them to fly yesterday. Transferred them to a Dovetailed hive this morning, *without smoke, and handled them, patting them on the back*, and I never saw such quiet and docile bees. If their working qualities are as superior as their handling, I am prepared to say you have the best bees I have ever met with, which would include some 25 or 30 different breeders, and all the well-known races.

Yours very truly,

OREL L. HERSHISER.

The colony of one of the queens I have selected for a breeder in this yard gathered right about 400 pounds of honey last season. I have not measured her bees' tongues, but they are ALL RIGHT, LONG OR SHORT.

Yard No. 2 consists of imported Italians, daughters and granddaughters. For further description see ad. later. Testimonials on application.

Yard No. 3—GOLDEN BEAUTIES or 5-banded Italians.

I am now booking orders for spring delivery; first come first served.

Untested queens: 1, \$1.00; 6, \$5.00. Select untested queens: 1, \$1.25; 6, \$6.00. Tested queens: 1, \$1.50; 6, \$8.00. Select tested queens: 1, \$2.00; 6, \$11.00. Breeders, \$3.00 to \$7.00. See circular for specifications.

ROOT'S GOODS AT ROOT'S PRICES, plus carload rate freight.

W. O. VICTOR, Queen Specialist. Wharton. Wharton Co., Texas.

California.

The State that produces carloads of honey; the largest averages of any State in the Union; a mammoth honey association to market the crop; the value of different fields, is told in the

Pacific Bee Journal,

Los Angeles, Calif.,

whose correspondents are successful producers of tons and tons—20 to 80 tons each.

California as a Honey State, by A. J. Cook. Gallup's Bee-keeping Experiences. Nevada Forging Ahead. Utah Bee-keeping. Washington, Oregon, Idaho, and Arizona News. Bee-keepers say the Pacific is one of the best \$1.00 bee-papers, prettily gotten up and illustrated; most appropriate cover design.

Clubbed with GLEANINGS, new or renewal, \$1.00 a year. Grand club with GLEANINGS and Rocky Mountain Bee Journal, \$1.25 a year.

The Pacific Bee Journal, Los Angeles, Calif.

237 East Fourth Street.

"Colorado's Characteristics; the Advantages of Irrigation; and how Western Bee-keeping Differs from that of the East," is the title of a six-page editorial in the Jan. issue of the Bee-keepers' Review.

The editor spent nearly two weeks, last November, with his camera, among the bee-keepers of Colorado; and this "write-up" is the result. It is illustrated by several pictures taken by the editor, showing the mountains, alfalfa fields, "ricks" of alfalfa hay, herds of cattle, apiaries, hives, etc. Mr. M. A. Gill, who, last year, managed 700 colonies in Colorado, producing two carloads of comb honey, begins a series of articles in this issue. His first article is on "Hive-covers," and is the best of anything that has yet appeared on that subject.

Send ten cents for this issue, and with it will be sent two other late but different issues. A coupon will be sent entitling the holder to the Review one year for only 90 cts.

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W. Z. HUTCHINSON, Flint, Mich.

How do you like the advertisement of Sure Hatch Incubator on page 74?

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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FINEST LINE OF BEE KEEPERS' SUPPLIES IN
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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. ROOT CO. MEDINA, OHIO. \$1.00 PER YEAR

VOL. XXX.

JAN. 15, 1902.

No. 2.



"BOILING HONEY will obviously spoil it for vinegar," says the editor of *British Bee Journal*.

THE LENGTH of English words is less than you might suppose. In the nine verses of the beatitudes, Matthew 5, the average length of the words is a little less than $4\frac{1}{2}$ letters each. In ordinary language, as in the pages of *GLEANINGS*, the words are still shorter.

PROPOLOSIN is very highly spoken of in *Deutsche Illus. Bztg.*, Editor Gravenhorst saying he has been astonished at the results of its use in different wounds and sores. It is also said that, if the hands are rubbed with propolis, they will not be stung by the bees.

THE ILLUSTRIRTE MONATSBLAETTER says Reidenbach finds the weight of 30 bees' eggs to be 5 milligrams; and that Cook, in 1891, in *GLEANINGS*, published 3.9 milligrams as the weight of 30 eggs (I don't succeed in finding it in *GLEANINGS*); and then asks which is right.

TO DETECT adulteration in wax, the *Schleswig-Holst. Bztg.* says to burn a piece on hot iron. If a pleasant smell arises, the wax is pure. If it is impure there will arise a disagreeable, fatty, white smoke. Burn a piece that you know is pure, and then compare the suspected article by burning.

P. SCHACHINGER, in *Oest. Bztg.*, gives this: A cluster of bees were hanging under an alighting-board, only two of the number clinging to the board, the rest hanging to these two bees. The little cluster was taken off and counted, and was found to number 64. So each of the two bees supported 32 times its own weight!

I AM ASKED how much acid I used in syrup of 5 sugar to 2 water. An even teaspoonful of tartaric acid to every 20 lbs. of

sugar. Dissolve acid in a little water, and stir into the syrup about the time the sugar is dissolved. But I'd much rather feed early enough to have equal parts sugar and water, and leave the acid out. [So would I.—Ed.]

WHEN I have forced a very young bee to sting me, I have been surprised at the mildness of the sting. So I am not surprised that Dr. Langer reports the amount of poison carried by a nurse-bee to be .00015 of a gram, while that of a field bee was twice as much, ranging from .00025 to .00035. [Sometimes the sting of a worker right from the fields is so painful that I feel like groaning—yes, and I do groan—with pain. I am quite prepared to believe that the fielders have twice the amount of poison in their poison-sacs that the home bees have.—Ed.]

W. E. FLOWER reports in *Review* that he succeeded in getting one queen mated in a tent $12 \times 10 \times 6$. That's hopeful—not because of the large number of successes, but because a tent of that size is within easy reach; and if he succeeded in one case he may learn the trick of succeeding always. Keep on, Bro. Flower! [This is the very experiment I had contemplated having tried at our own apiary the past summer; but absence from home, and general pressure of work, precluded carrying it out. I must say I am very hopeful; for, as has been already said, if we are to bring about improvements in our breeding stock we must control the selection of the males as well as of the females; and the tent plan is often the only feasible one for the average queen-breeder to carry out. An island in a body of water is, of course, feasible to those who are on such an island, providing the drones from only one queen are allowed to fly on that island.—Ed.]

ONE of the things that I can't understand, although I must believe it, is that length and reach of tongue have no fixed relation to each other. Prof. Gillette's measurements show six times as much variation in reach as in length, and in at least one case two tongues can be found in which the shorter tongue has the longer reach.

[If this is true, and I believe it is, then the experiment of Mr. Doolittle regarding those four colonies wherein the shortest-tongued bees gathered the most honey proves nothing. Prof. Gillette's measurements of those bees were for tongue *length*—or at least that is so reported in Doolittle's article. It is possible and even probable that those short-tongued bees were not really short but long reach bees. This only emphasizes the fact that tongue measurement ought to be confined to tongue reach, and that by some sort of glossometer that will give the measurements for a whole colony and not for a few bees.—ED.]

THE UNCAPPING-FORK, heretofore, has been mentioned only in terms of praise. Now *L'Abeille* seems to prefer the knife, because with it inequalities of the surface may be cut down so as to make the combs of uniform thickness, and the knife is also needed to remove burr-combs. [While on my western tour I saw considerable extracting in a wholesale way, and I am very sure that the fork could not be used in place of the knife. It is the general practice to space the combs in supers $1\frac{1}{2}$ to $1\frac{3}{4}$ from center to center. This, of course, makes very thick extracting-combs. They are then sliced down to from $\frac{7}{8}$ to one inch in thickness, leaving sharp clean-edged cells so that nearly all the honey can readily flow out by centrifugal force. But from the experience I have had with forks, combs, and brushes, I could do no better than to make the edges of the cells very ragged. The result would be that it would be very difficult to throw the honey out of them, especially when many cells are only partly opened.—ED.]

YOU WANT ME, Mr. Editor, to make war against what was formerly ungrammatical but is now accepted as good usage. Not I. When a thing becomes accepted as good usage it is grammatical, and I don't propose to fight grammatical expressions. I've no call to go back to past generations and fight them for admitting some words and usages into good society that possibly ought not to have been admitted. I've more than I can do to fight stubborn editors that will insist in defending expressions that are not now grammatical, never have been grammatical, and I hope never will be grammatical. Now are you "shook" enough? ["Nixie." But say; how can a word be grammatical when it violates all present rules of grammar? Accepted usage may give a word respectability in literature; but how could it make it grammatical, present or future, if it was not so in the present or past? I suppose this is one of the things we shall have to fight out when we get together.—ED.]

REIDENBACH, according to *Leipzig. Bztg.*, has been making some very careful investigations as to the comparative size of cells in new and old combs. Like others, he finds the cell-walls remain thin, although in very old comb the septum may be $\frac{1}{8}$ to $\frac{1}{4}$

inch thick. To get at the contents of the cells, a novel plan was used, although a very common-sense one. He carefully measured the amount of water each cell would contain. A cell in freshly built natural worker comb he found to contain .28 cubic centimeter, yet on the edge of new comb out of which brood had already emerged he found cells containing only .20. In old combs with septum $\frac{1}{8}$ to $\frac{1}{4}$ inch thick, the contents never fell below .20, but in most cases the measurement was .25. [In other words, there is scientific proof to show that the diameter of the cells of honey-comb does not become less through age. We have known, however, that the depth of the cells varied; but this does not make shorter bees, because the cells at the start are longer than is necessary. As I have before stated, Nature would not make such a tremendous blunder as to make smaller bees. All species have a tendency to remain the same size.—ED.]

I ARISE to remark that "in this locality" no stock whatever is taken in the belief that length of tongue is a mere incident in red-clover queens. It's an essential of the most essential character. You may have all the other characteristics you like, and if you haven't length of tongue you'll never get the nectar out of red clover. Just tell me, if you please, Mr. Editor, how you're ever going to get the nectar out of the bottom of a 20-hundredth tube with a 19-hundredth tongue reach. [You can not, of course; but if one colony would gather twice as much honey as another one whose bees had longer reach, then I would take those bees that got the honey *somehow*. Suppose here is a colony whose bees have an average tongue reach of .19; and suppose, again, that one-half of all the corollatubes of the red clover in the field are .20 deep and over. Is it not possible that the .19 reach of bees might get all the nectar from the tubes .19 and under, while the .20 reach bees would get only one quarter of the honey available to them. I still think that length of tongue should be considered of secondary importance, and that the ability to get honey *by some means* should be the first consideration.—ED.]



Blu-tering storms with chilling breath
Howl around the door;
Winter comes with all his hosts
From the icy arctic shore.

BRITISH BEE JOURNAL.

Quoting from *Science Siftings* we learn:

Few people know that honey possesses great value as a food on account of its ease of digestion; for which reason it is especially desirable for those with weak-

ened digestive powers. The nectar of flowers is almost entirely cane sugar. The secretions added by the bees change this to grape sugar, and so prepare it that it is almost ready for assimilation without any effort on the part of the stomach. The unpleasant symptoms from which some suffer after a surfeit of honey may often be removed by drinking a little milk.

Mr. Cowan says:

Not since the appearance, in 1876, of Buechner's "Mind in Animals" have we had a book about bees more charming, or one that we have read with greater pleasure, than Maeterlinck's "Life of the Bee."

In speaking of sections of honey weighing less than 16 ounces, a writer says:

Society righteously brands such weights with even a stronger and harsher name. I trust that, whatever innovations may be introduced, a pound section may be made to weigh the full number of ounces.

If it is a pound section, why bother about the weight? But as bees don't know that 16 ounces make a pound, we shall have to take sections as they come, and sell them at so much apiece, saying nothing about the weight. A vender of very cold "hot" cakes excused himself by saying, "I didn't mean they were 'ot. 'Ot is just the name of 'em." If "pound" is "just the name of 'em," perhaps we'd better change the name, leaving off all reference to weight.

The editor quotes the following from *Answers* of Nov. 30:

The purchaser of honey vainly imagines that swindling is impossible if frame honey is bought. The fact is that clever bee-keepers now make perfect imitation combs out of paraffine wax, and put these into the hives for the bees to fill and seal. To test it, pour a drop or two of sulphuric acid upon the comb which is on trial. Good beeswax will char and blacken under the acid, but upon paraffine no effect will be perceptible.

The only strange thing about the above is that the *British Bee Journal* lets it go as if it were an undoubted fact, making no reply. It did not take pains to say that such combs can not be made by man, and that they would melt down by the heat of the hives, even if man could make them. A failure to do this is as bad as to publish the canard. The general reader would take it as a piece of common news.

AMERICAN BEE JOURNAL.

In speaking of the benefits of co-operation among bee-keepers and the agricultural classes generally, Prof. Cook relates the following, and his words contain a volume:

The Citrus Fruit Exchange of Southern California has now been in operation for over seven years, and has been an eminent success. These are the things which it has done: Greatly lessened the expenses in preparing to ship; secured a more perfect grading of the fruit; employed salaried agents of their own in all the leading cities; developed new markets in the East; with surprising success distributed the fruits in the East with such skill as to prevent overcrowding or ruinous competition, and at the same time keeping all the market supplied; doing all their business at an expense of less than three per cent, and, though the goods marketed bring in millions of dollars each year, they have met with almost no loss at all—less than one-eightieth of one per cent during all their years of business. The receipts of their business the past year have been over eight millions of dollars, and yet there has been no loss at all. This is only one of several years with a similar record.



AIKIN'S HONEY AND WAX SEPARATOR.

A Valuable Adjunct to the Solar Wax-extractor.

BY R. C. AIKIN.

About three or four years ago I conceived the idea of an attachment to wax-extractors to separate the honey and wax. The old way of letting the honey and wax run into one common pan or tank had several objections that I longed to get rid of, and, having solved the problem in a very satisfactory way, I now propose to publish the results of my cogitations and experimenting. The device, while having more properly its place with the solar, may be made to answer the same purpose for which it was invented, in connection with wax-extractors of other kinds. I have no extractor but the solar,

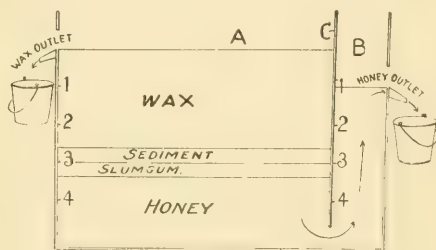


FIG. 1.

hence have not used it with any other kind, but the principle may be applied to others.

The principle upon which this device works is specific gravity. Honey weighs 12 lbs. to the gallon, and water about 8 lbs. I do not know what is the weight of beeswax, but I know what every apiarist does—that wax is lighter than water. It is immaterial as to the exact proportion, so we will call it 8 for wax and 12 for honey.

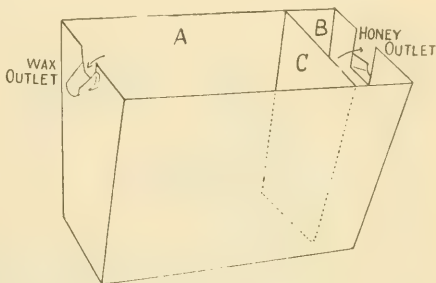


FIG. 2.

Now, suppose you take a cake of wax 3 inches thick and put it into a bucket of honey or into a tank where the wax has plenty of room so it does not touch the bucket or tank in any way that will interfere with its

floating, and the wax will stand one inch above the surface of the honey. You see it is just a matter of weight; 2 parts of the honey are as heavy as 3 parts of the wax, hence the wax carries its surface clear above the honey, just as a cork floats a considerable part of its bulk above water. It matters not whether the wax is liquid or solid. It is bound to float just the same. A third of its depth will stand above the honey, and the rest will be submerged.

Now look at Fig. 1. This represents the separator as it appears in a general outline view. This is placed under the drip, as it runs from the pan supporting the mixture of wax and honey-cappings, broken or any kind of comb. The first to flow from the melting combs will be honey, dropping into the separator at A, the larger of the two compartments. The partition between these compartments does not reach quite to the bottom by about $\frac{1}{2}$ inch, hence the honey will pass under and rise in both compartments alike.

Look at the outlet for honey, and you will see that it is deeper from the top than the wax-outlet; and so when the honey rises to the opening it flows out, and will continue to flow as long as it pours into the other compartment, passing under the partition. The wax will begin to come shortly, and, being so much lighter than the honey, will begin to rise or pile up in compartment A. No matter what amount of wax falls into the honey, it keeps rising above and settling below the level of the honey-outlet; $\frac{1}{3}$ the depth of the body of wax is above and $\frac{2}{3}$ below; thus it increases until it flows out at its own overflow-outlet, and thereafter maintains its position, becoming neither deeper nor shallower. As long as wax and honey continue to flow in, the wax floats in its own compartment; and the honey, being so much heavier, sinks right through the wax and comes up and out at its own level. If wax stops coming, that body of wax in compartment A just remains as it is, neither less nor more, and honey may pour in all day, but will pass through and out at its own door; and, likewise, should honey stop coming, but wax continue to flow, the honey in the separator remains stationary, and the wax overflows into its own place. There is no limit; the two must separate and flow their own way when they come into the separator, whether it is tons or pounds.

There should be a check or dam to keep back the slumgum that would wash down into the separator. There is always more or less of sediment that will get down; but if the cocoons and more bulky foreign matter are kept back the fine sediment will be found accumulated between the honey and wax; and when the remnant of wax cools and is removed the sediment comes with it.

This little contrivance I count as a valuable adjunct to any solar, and may be used to advantage in many places. I have made my solar with one end for all sorts of trashy combs, and the other end for melting cappings, candied sections, new broken combs,

and any clean combs that may contain honey suitable for table use that can not well be separated in the extractor. Cappings or broken combs placed in the solar will very soon release the honey and let it run into the separator, and from there it will soon be in a tank or receptacle underneath, and away from the heat and light. I have sold many hundred pounds for table use that has been through the solar and separator. The fact is, the separator is a sort of strainer, acting on the specific-gravity plan, and does its work when the honey is quite warm and thin, so that it separates freely, the impurities floating up next to the wax. This idea of a strainer has been published in this journal, but I do not take the time to hunt up when or by whom.

For cooling and caking the wax, I use the Rauchfuss idea of a series of small pans with an overflow from one to the other. The Root Co. is now putting out the same thing with their solars. The honey, besides being strained by the gravity process in the separator, passes below into a tank, and there, while still warm and thin, goes through another gravity-straining process; and, if not yet satisfactorily done, can be drawn from there and put through cheesecloth or other strainer.

My separator, which has handled about a thousand pounds of wax and over a ton of honey this summer, is very well represented in Fig. 2. The bottom is about 2x7 inches, the top about 6x9, and the depth about 7 inches. There should be at the very least an inch from the bottom of the body of the wax to the bottom of the partition C. That will make sure that neither wax nor sediment gets under to float out with the honey. The flaring shape is to make the wax remnant easily removable when cooled, and to get the necessary depth without having an undue amount of honey in the separator, which must be there all the time. Possibly a much smaller arrangement will do as well; and if so, the honey and wax remnants always left over from one day to the next would be very nominal indeed. I think mine carries less than 2 pounds of wax, and it has handled well nigh 200 pounds in a day—would handle much more if it could be melted and delivered to it. Each morning the wax remnant should be removed and put back to remelt. This keeps the sediment from accumulating. The honey remnant need not be changed for days or weeks.

Brethren, this is a decided success. I feel that I have at last developed at least one invention that will be useful to apiculture. My next article will deal with the construction of solar wax-extractors, pointing out wherein the present construction method is at fault. Like this separator, when you see how to build a solar, you will wonder why you did not think of it before.

[You say this idea of a strainer has been published in this journal before. You probably refer to what is known as the G.

C. Ferris wax-bucket, illustrated and described on page 277 of our issue for April 1, 1901. The principle, however, is not quite the same, or rather, perhaps I should say, you have improved on the Ferris plan by providing two outlets—one for wax and one for honey; and in this connection it should be stated that you use your apparatus in a little different manner. Mr. Ferris aims to clarify the wax, while you go still further, separating the honey from the wax in such a way that both of them, after being separated, are free of impurities.

While you do not say anything about it in your article, I should imagine the same outfit would be very handy during extracting time. Suppose, for instance, the honey from the honey-extractors ran direct into compartment A; wax cappings, dead bees, refuse dirt of every description, would remain in A until the surplus would overflow at the wax-outlet, while the clear nice honey would pass under the partition C, and flow out of the honey-outlet as shown in the diagram.

In our next issue Mr. Aikin will describe his combination solar and artificial-heat wax-extractor. He probably has the largest as well as most elaborate extractor of the kind in the world.—Ed.]

RAMBLE 197.

Bee-keeping in Southern California; Co-operation for the Formation of a Trust of Honey-producers; Advantages and Benefits Explained.

BY RAMBLER.

I found the bee-keepers of Southern California very enthusiastic over the fair yield of honey secured. There is nothing like prosperity to cheer a man up and make him hopeful; and having just emerged from a three-years' drouth it is nothing strange that the reaction should be rather feverish.

During the poor seasons, bee-keepers when in the city were in the habit of browsing for a stray meal now and then in 10 and 15 cent restaurants; but now it was 25 and 50 cent eating-houses. Mr. Brodbeck had dropped his oil business and returned to his first love—had secured a fine yield of honey, and, under the protecting care of a capitalist, was buying whole apiaries. I believe they now have 1000 colonies. Several new men have appeared in the ranks; and if the seasons would change for good ones the future for Southern California would be bright.

I found the *Pacific Bee Journal* blowing its horn lustily again. It even goes so far as to corral the weather for the next decade; but I think the bee-men will continue to look to the Weather Bureau for a good share of their information.

As stated in the previous Ramble, the Shaffner Brothers were managing my bees and their own with success. I herewith present a photo of these enterprising young men in their cosy camp at the Rambler's apiary, with dog, gun, and horse. Arthur is contemplating a slice of bread and honey, while Earl has anticipations toward an apple. The horse also had the same mind, and moved his head. Although this retreat is only ten miles from Los Angeles, there are coyotes, mountain lions, and now and then a deer seen here. Some of the night adventures here would make the average man's hair stand on end.

I found the bee-men also ready to promote any enterprise for the increase of their honey pasturage, and for the irrigation of arid places. A new invention has recently been tried successfully that may work a revolution in irrigation matters in Southern California. This portion of the State has no large rivers to draw from; but there is plenty of water if they dig for it. When found by digging, the next operation is to pump it to the surface, and that is where the new solar engine will play an important part. This engine is run entirely by solar heat—no expense for fuel, and, during the season for irrigating, we have continuous sunshine; and what wonders are performed in this country with water and sunshine!

On page 472 I gave you a photo of an immense eucalyptus-tree of only eleven years' growth. Let me show you one of our beautiful pepper-trees that is also making a rapid growth. This tree was planted in October, 1899. It was then two inches in height, and a mere thread. This photo was taken in November, or a trifle over two years after, and, note the growth! Mrs. May and daughter are very proud of their pepper-tree, and the bees were busy upon those little flowers when the photo was taken.

The hopefulness of the bee-men here has a sort of contagious influence, and I began to be hopeful with the rest; but I have learned that we are not sure of a honey



SHAFFNER BROS. IN CAMP AT RAMBLER'S APIARY.

crop until well into the winter, and after the proper amount of rainfall.

These certain uncertainties have led the Rambler into new fields and into enlarged ideas in respect to bee culture. Let me expound a new doctrine.

In the first place, let me ask why it is that capitalists seldom invest in bees. The answer is upon your tongue—owing to the uncertainties. A capitalist is looking for a sure thing, or an income for the money invested, and hardly ever enters this field unless he becomes an enthusiast about bees.



PEPPER-TREE, TWO YEARS' GROWTH.

I am quite sure the time is ripe for putting the matter of honey production upon a safe financial basis, and so sure of good returns for invested capital that the latter will seek investment. This new combination is a little too large for bee-men to undertake themselves and without capital; but bee-keepers and capitalists can work together in these interests. For instance, let a company be organized upon strictly business principles, with trained business men at the head of it. Let said company own, by purchase, 10,000 colonies of bees in Southern California. As to the management of said bees, according to our present

methods for extracted honey, three men could manage 1000 colonies or more during the busy season, which, in Southern California, lasts from April until July. During the other eight months one man could easily care for over 1000 colonies, except at times when hives should be made or bees moved to new locations; but when apiaries become well established one expert could care for an indefinite number.

We have now established our 10,000 colonies in Southern California. Let us now go to Central California and establish another 10,000 in a series of apiaries. Nearly the same conditions exist in Central California for the actual work in the apiary as in Southern California, with the exception that the honey yield comes later, or July until October. Inasmuch as this is prolonging the honey season to seven months for our company it might be asked, "Why not move the bees from Southern to Central California?" I would oppose several reasons to this:

1. The removal of an apiary abandons the field to others.
2. The expense.
3. An apiary that has just secured a crop of honey would not be fitted for gathering another so soon without requeening and much building-up work.

We have now planted our 20,000 colonies, where, in a good honey season, we shall get a seven-months' flow. Now, in order to fill up the five-months' gap, and make the honey-flow continuous all the year round for our company, let us establish 10,000 colonies in Cuba, where the main flow comes from November to April.

Let us now sum up the advantages. The leading one is the elevation of the industry to a position of certainty. If I own stock in the company I am sure to realize a good percentage, even if there is a failure at one point. If a bee-keeper has put his bees in as stock he is interested in all of the locations; and if his crop fails, another location will bring him a revenue; but when the yield is good in all of the locations his dividend would be no small amount.

Another good feature about this combination is the inducement held out to young men to take up the business as an all-the-year-round and life vocation. At present there is no inducement, for the business in one location is short and uncertain. A skillful bee-keeper (and no others need apply) who puts his bees into the company could secure work the year round.

Then the grading and marketing of honey could be brought to something systematic, and in the hands of skillful managers.

The failure of exchanges and all similar organizations is caused by the narrowness of their operations, and the lack of financial backing. I speak from experience, and experience dearly bought, when I say that associations organized without financial backing will and do result in weak attempts or total failures.

The capitalist must step in with his mon-

ey, and, as I have reason to know, the plan above meets with his approval.

This plan can be organized in California, Texas, and Cuba, or with any other localities that will bring a continuous honey-yield and an unlimited number of colonies. It is in no sense a trust—it is only a broadening of the industry into a safe business proposition. It is not a visionary scheme, for private parties are carrying it out in a smaller way to-day. The Rambler is now in Cuba, looking up the industry; and, although he is but upon the borders of the land, he feels the influence of much sweetness, and hopes, in the next Ramble, to introduce the reader into the "Gem of the Antilles."



OFF FOR CUBA.

[This plan of co-operation, or bee-keepers' trust, is very much like what was advocated by the editor of the *Pacific Bee Journal* a short time ago; but bee-keepers generally did not take kindly to it, I understand, and the scheme fell through in favor of some sort of exchange. Well, now, here we have the Rambler actually advocating the same thing. Of course, he says it is not a trust; but nowadays the meaning of the word has been enlarged to incorporate an aggregation of individuals, corporations, or firms, under one head, forming one mammoth corporation not only controlling but actually owning the former independent concerns. Whether such a plan can be made feasible in the bee-keeping line remains to be seen. There is much to recommend it if bee-keepers will put in their apiaries and equipment as so much stock. Certain it is that *some* controlling force should handle the entire output of the honey for any one State rather than to let the product of a thousand different bee-men go into the market in direct and open competition, resulting in a low level of prices rather than those that would put the business on a profitable basis so that those poor years that are bound to come could be tided over.

The illustration of the pepper-tree is only a fair sample of the wonderful growths that very often take place in California and Arizona. We here in the East would give hundreds of dollars for shade-trees on our front lawns; but in California all one has to do is to set out a cottonwood or a pepper-tree, and in two years' time he has fairly good shade, and in ten years he has a tree of the size of our elms when they are about fifty years old. —ED.]

SHALLOW BROOD-FRAMES.

Localities where the Honey-flow is Scant; Extra-thin Foundation for Sections.

BY J. E. HAND.

"Well, here I am again. I have been doing some hard thinking about this system of contraction and expansion by means of very shallow frames. I am just starting in the bee business, and am very anxious to start right if I can; but I have been looking up this matter of large vs. small hives and deep vs. shallow frames, and I find such a difference of opinion among prominent bee-keepers on these questions that I am more than ever at sea as to what size of frame and hive to adopt."

"Yes, it is true there is a great diversity of opinion on these questions. As on all others, men are differently constituted. What suits one man will not suit another of different temperament. With me it is not simply a matter of like or dislike. There are some things about shallow frames that I don't like, but I am depending on the business for a living for myself and family, and it behooves me to be very careful about this matter. There are locations so good that a fair crop of surplus can be secured with almost any kind of hive, but ours is not one of these. Look around among the bee-keepers of this vicinity. They will tell you that the business is too uncertain, and that it will not do to depend upon bee-keeping for a living. If they do not, their rows of hives that are silent and empty have a language of their own that is more eloquent than words. I do not believe there are more than half as many bees in this county as there were five years ago. It is only by the most careful management and the most approved methods that any one can succeed in such a location as this; and unless a man has a natural love for the business, aside from the dollar-and-cent part of it, he will very soon give up the contest as too unequal, and turn his attention to something that is more certain."

"These are truths that every one must face who has an aspiration to become a honey-producer in such a location as ours."

"In view of these facts, your desire to start right is very commendable."

"Would it not be better for a man who has a natural love for the business to move to a location that is better suited to this occupation—to some of the paradises described in the bee-journals?"

"Well, friend Charles, this is a question that I have thought about a great deal during the past three poor seasons. There are a great many things to be considered in changing to a new location. I have been in some of these paradises, and there are other things to be desired besides securing a large crop of honey. Many of these places are far from market; and unless bee-keepers have an organization to protect themselves they are at the mercy of speculators who will buy their product at their

own price because they can not ship it themselves; and then most of these locations are already overstocked, and strangers will meet with any thing but a hearty welcome. A good accessible market, with a fair to poor honey yield, is more desirable than a good crop that is practically inaccessible to market. This past season has decided that, for me, the proper solution of this problem rests in improved methods, careful management, and in developing the resources already at hand."

"I believe you are on the right track in this matter, and that the main thing is to study thoroughly your location, and then use the methods and appliances that are best suited to that particular location."

"Yes, that is it; or, as Heddon puts it, plant your guns and stay by them. Keep more bees; produce tons instead of pounds. Here is a sample of the foundation that the bees accepted and worked out into such beautiful combs of honey by the feeding-back process. It is the Root thin-base foundation. Here is a section that was on the hive only 12 hours, and at a time when common foundation would be completely destroyed, and here is one that is finished. You see there are no pop-holes in the corners of either of these sections, and this one that has been on the hives only twelve hours has honey in some of the cells."

"Do you fasten the foundation at the sides?"

"No. The pieces are made of a size just to fill the section inside, and will be quickly and firmly attached to the sides as well as at the top; but this one is as firmly attached at the bottom as at the top."

"Oh, yes! I always use a narrow strip of foundation at the bottom of sections. Does not the fence separator have something to do with those well-filled sections?"

"Yes. I am very certain that the free communication afforded by these separators has a tendency to lessen the pop-holes that are such an eyesore to producers of fancy honey, but not so much as does the thin-base foundation; and with the two combined there is nothing further to be desired in this direction."

"What is the cause of these pop-holes, as you call them?"

"Well, I have always thought that the bees made them for passageways; but this last season I have about come to the conclusion that the bees gnaw out the foundation because they don't like it, and afterward are slow to fill up these holes, because they are so handy for passageways. It was this idea that led me to try the thin-base foundation, which, in every case, was accepted the same as natural comb."

"Do you think that a section that is taller than it is wide, or 4x5, will be any better filled than one that is square, or 4½ x 4½?"

"No. Other things being equal, one will be just as well filled as the other."

"Is not this foundation rather expensive?"

"Yes. It cost me 75 cents per pound, and that is about ¾ of a cent per section; but if I can get ½ cent more per pound for these extra well-filled sections it will pay me to use it, even at that price. I shall experiment further the coming season with this foundation."

SUPER FOUNDATION FOR THE BROOD-CHAMBER.

The Use of Weed and other Foundation.

BY W. T. STEPHENSON.

I was very much interested in that contribution on page 789, by Wm. M. Whitney. I have been experimenting along the same line myself, viz., using super foundation for the brood-chamber. I did not, however, buy the surplus foundation with the intention of using it for brood foundation. I purchased what I thought to be enough of both kinds — brood and super. Late in the season I suddenly needed foundation for about 100 frames. When I examined my pile of brood foundation I found, to my sorrow, I had only about 8 sheets. In my bewilderment I hit upon the following plan: I would use the super foundation for the brood-frames. I fastened one sheet lengthwise to the top-bar of each frame, precisely as the brood foundation was fastened, after which I put small drops of beeswax along the edge of the groove as a reinforcement. This is not necessary with every frame, as some of the wedges are thicker than others. After the foundation (thin or extra thin) is securely fastened I have no more trouble from sagging or warping than with brood foundation.

I presume I had better say the foundation used was the Weed patent. Success having crowned my efforts last year, I concluded to try it on a larger scale this year. I didn't get the Weed foundation (not fully appreciating its superiority), and consequently my experience this year was quite on the other extreme. After I had stayed this foundation with wedge and beeswax, the weight of the bees would tear the foundation in two. It would warp and fall down after the cells were ¼ inch deep. Such a mess! I was thoroughly sick of my trade. Notwithstanding my "bad luck" this season, I am quite certain that, unless full sheets of foundation are required, the Weed super foundation will do all right.

There is, however, one serious objection to using super foundation for the brood-frames. It is this: Unless there is a brisk honey-flow (brisk enough to keep the bees busy) they have an idle habit of gnawing holes through the midrib of the foundation. This makes pop-holes in the combs, as the bees will never replace the septum they have gnawed away.

I heartily sanction what Mr. Whitney says in regard to farmer bee-keepers using the thin foundation. If the apiarist can't give the bees the attention they need he had

better use something true and tried; viz., brood foundation. W. T. STEPHENSON.
New Columbia, Ill.

[Bee-keepers, if they only know it, can save quite a little expense by using thin foundation for brood-nests; but it must be intelligently used. Let the careful bee-keeper look to his profits.—ED.]

BEE-KEEPING IN NORTH DAKOTA.

BY A. P. ASPINWALL.

Wahpeton is at the confluence of the Otter Tail and Bois-de-Sioux Rivers, the two forming the Red River of the North. The Red River has numerous tributaries whose banks are bordered with forest trees.

There are numerous groves of wild plums and some basswood.

The flora of the valley is wonderful for its profusion and variety.

The nectar from which the honey is produced all comes from wild plants and trees.

There were three kinds of honey made this year—dark, white, and yellow, or amber. The dark came in the fore part of the season, the white in July, and the amber during August and September. There was no finer honey on exhibition at the Pan-

American. The hives are all eight-frame Dovetailed, made by the Root Co. They are painted red, white, and blue. The back end of the hives rests on a piece 2×4, and front on a one-inch board, which projects in front, answering for an alighting-board. Bricks are used for weights, and to indicate the needs of the colony, and supers by their position. Young fruit-trees are planted between the rows.

The timber in the rear of the house is on the Bois-de-Sioux River.

I run entirely for comb honey, which has a good local demand.

The bee industry of the State is in its infancy. It is bound to come to the front as soon as its possibilities as a honey-producing State are known.

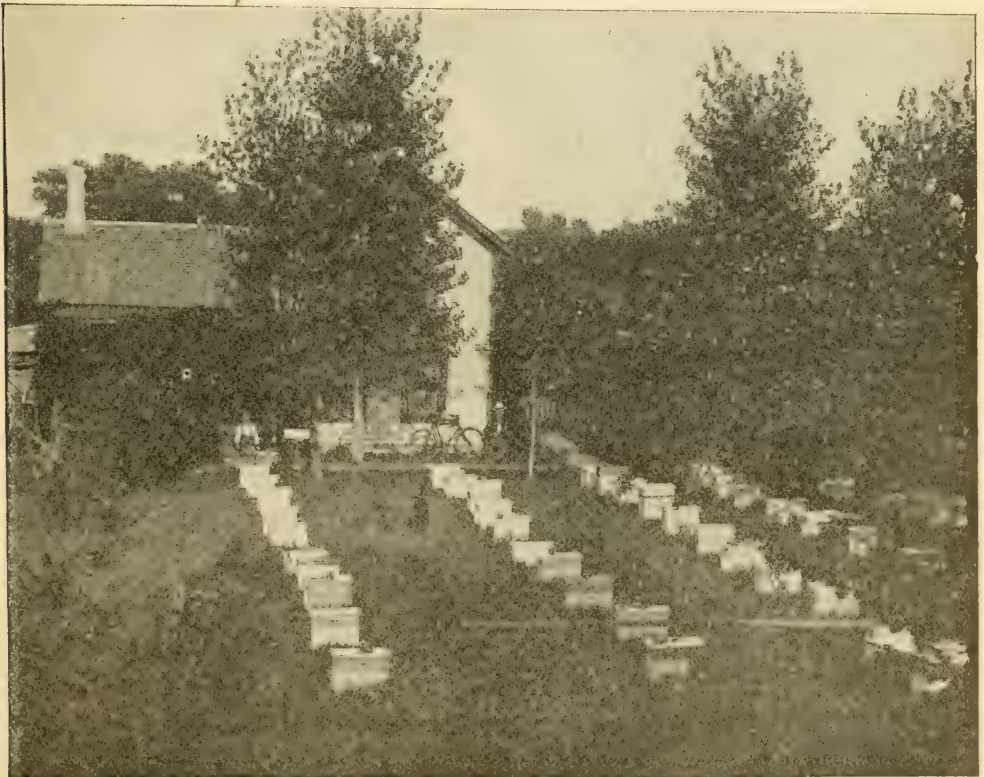
Wahpeton, N. Dakota.

HAULING BEES.

How to Do it by Loading them on a Wagon Just as they are in the Yard, Without Closing the Entrances.

BY ADIN STONE.

I have noticed the experience of others in moving bees from place to place, and the trouble from stings to men and horses in the operation. It has often recalled my



APIARY OF A. P. ASPINWALL.

own experience to mind. I will tell you how I moved my bees without closing the entrances.

I had about one mile to move, and about as many hives as I could place on a lumber-wagon as they sat in the apiary. I loaded them in as they sat, first using the smoker to drive the bees inside. I hitched a horse to the load and drove to my destination; unhitching the horse from the wagon, I waited until morning, when I set them on their stands. These were full colonies in eight-frame hives, Hoffman self-spacing frames, loose bottom-boards, $\frac{1}{4}$ -in. entrance full width of both ends of hives. All of them were left open as they stood when at work in the apiary. I moved on a lumber-wagon without springs, over a stony road, and through a small village, in daylight, between 6 and 7 o'clock p. m. I don't advise anybody, nor claim this as the proper way to handle bees; but I tell what I did successfully. Not a person was stung, nor any trouble whatever came from the bees. Of course, they came outside and clustered on the hives. I walked and drove the horse (not a very steady one either).

I found the same principle to work in this case as in handling bees in hives or hiving swarms. When thoroughly alarmed, and filled with honey, the bees attended to their own business and troubled nobody. I am satisfied I could have driven for miles with them.

I can not say that this plan will always work. It did that time and season, between spring and summer. Some new honey was coming in at the time. I am the person who called your attention to Hoffman frames years ago.

ADIN STONE.

North Bay, N. Y., Nov. 24.

[We have already had one report as to how a load of bees was carried over miles of road successfully without closing the entrances; and I believe that the method can be practiced to advantage a great many times, and at the same time save considerable labor. When screens are used there is always danger of the bees smothering; and especially is this true during warm weather. They will sometimes smother, even when the whole top of the hive is covered with wire cloth; and if they do not die outright they are of but little use afterward because of the previous scorching or overheating while *en route*. It is a well-known fact in bee-dom that a colony that has been jarred or bumped a few times becomes very docile, providing, of course, that this bumping is preceded by smoking. Of course, one could not expect to walk up to a hive and give it a kick without experiencing a most vigorous protest on the part of its occupants. But a smoking at the entrance will prepare them for further treatment; but it would not do, I should suppose, to give them just a few "whiffs." The whole colony should be brought under the influence of the smoke. After the load is once on the road, I should fear no further

danger. It is the starting—the first few bumps—that might cause a circus performance on the part of horses and driver.

This is somewhat of an interesting question, and I should be glad to have reports from others as to the feasibility of moving bees without closing the entrances.

I might say, right in this connection, that, in felling a bee-tree once, we had a good example of this. On the first shock—that is, when the tree struck the ground—the bees rushed out in battle array; but as soon as we begin chopping the log right over the supposed cluster of bees they subsided, and very soon we took off our veils. The chopping demoralized them to such an extent that they acted as if they were thoroughly subdued by smoke. Why should not bumping over rough roads have a similar effect?—ED.]



PROF. FRANK BENTON, of the Department of Agriculture, Washington, D. C., and Pres. W. F. Marks, of the New York State Association of Bee-keepers' Societies, are taking a hand in answering some of those comb-honey canards. Good! Keep it up all along the firing-line.

OWING to the great accumulation of good matter on hand that was awaiting insertion, and seasonable too, I found it necessary, in order to find room for it, to leave out my own travels for this issue; and although we give 8 extra pages, in addition to our regular issue, there is still quite a quantity left.

THE bees in our two cellars at this date have just been examined, and, according to Mr. Wardell, they are doing finely. We are not paying much attention to temperature, but are giving large amounts of fresh air. The 250 colonies under the machine-shop, unless the weather is very cold, get a fresh supply from outdoors all night.

ONE editor, who said something in his paper about manufactured comb honey, when shown the truth, came out with a manly retraction. In a private letter to a friend he says: "I wrote hastily, made a mistake, and take pleasure in correcting it." There is no reason why every one of the publishers should not be equally willing to correct the error. They would lose neither prestige nor dignity by so doing.

BEE-KEEPING IN THE WEST INDIES.

THIS is the title of a neat pamphlet of 78 pages, received from and published by Dr. D. Morris, Commissioner of Agricul-

ture for the West Indies, written by W. K. Morrison, well known to readers of GLEANINGS. As its name indicates, this book is prepared especially for the tropics, and a very careful reading fails to show any thing which is subject to adverse criticism. On the other hand, it is worthy of a careful reading by bee-keepers and prospective bee-keepers in that section of the country. It is intended as a guide to beginners, and is full of valuable information. The bee-keepers of the British West Indies are to be congratulated on having so able a man as Dr. Morris, for he has not only made it possible to furnish them this book without expense, but is assisting them in many other ways.

PROSPECTS NOT FLATTERING FOR CALIFORNIA HONEY NEXT SEASON.

SEVERAL of our subscribers in California have written us that, up to the 1st of January, there had been little or no rain, and that this was the smallest amount up to that date for a *period of over thirty years*. Of course, there may be copious showers yet; but they will need to come soon if they are to do any good.

There are quite a number of bee-keepers on the coast who held back their crops last summer rather than sell at low prices, and wisely so, I believe. They will surely find a market next season for all they have, at good figures. A prospective short crop in California ought to mean a stiffening of prices throughout the whole United States; for there is no one State in the Union that, in a good year, gives anywhere near the amount of honey that California does; and when it unloads after one of its big seasons, it is apt to make a flurry in the market.

THOSE COMB-HONEY CANARDS, AGAIN.

A GOOD part of my daily correspondence is answering a great variety of clippings, slandering the comb-honey business, in the various weeklies and dailies throughout the country. The task seems almost hopeless, and I again call on our readers to help. If every one of our subscribers would sit down and write a short note to the paper publishing such stuff, its editor would begin to think bee-keepers were somebody, and that he would lose subscribers if he did not retract. Suppose a publisher got a dozen letters a day, and some days a hundred; and suppose the flow of protests continued for two or three weeks, he would soon see that he would have to do something to square himself with the world, and he would. There is nothing like the force of *numbers* in a fight of this kind.

Brothers and sisters, this means bread and butter to *you*. If you do not wish to see a staggering comb-honey market another year, get right down to business at once. But perhaps you say you do not know what paper to write to, or have forgotten. Let me suggest that you turn your guns on the *Chicago Tribune*—the paper that started

these comb-honey canards and which has never really retracted. Let that paper *feel* that there is a *power* back of bee-keepers. The *Chicago Chronicle* has retracted handsomely, and so have half a dozen others.

There is another paper that persists in the wrong, and that is the *Farmers' Guide* (blind?), published at Huntington, Ind. Besides these two, there are scores of other sheets that I will not mention particularly, as I am not in position to know whether or not they have made any correction or propose to.

Our attorney is at work on the case where the members of the Root Co. are accused of putting out manufactured comb honey. The law is slow, but we have every reason to believe that our accuser will have to "eat crow" or go to jail, for we have been accused of a crime.

THOSE BEES IN THE MACHINE-SHOP CELLAR; IMPORTANCE OF FRESH AIR IN BEE-CELLARS.

THERE are 200 colonies of them, and they are wintering finely. To all appearances they are doing as well as the 50 colonies did a year ago; and these, it will be remembered, came through without the loss of a colony, and scarcely any dead bees on the floor. During warm nights, when the air is sultry we open the door opening into the outer cellar, and just opposite this door is a window leading to the outside. The cool fresh air pours in all night, and then before daylight comes on the door is closed. We have tried keeping the door shut every night running for three or four days, but the bees get uneasy and begin to roar. This goes to show that an infusion of fresh air from outdoors and a constant supply of it *all the time*, day and night, from the outer cellar having ten times the cubic capacity of the room in which the bees are, is important. Yes, indeed, I am becoming more and more convinced that plenty of fresh air in indoor wintering is one of the prime essentials, and that variation in temperature is only secondary. Why, the mercury in our bee-room last year, where the bees wintered so perfectly, moved up and down all the way from 38 to 60, and noise—there was a constant banging and slamming, and yet you will remember I kept those bees in till about the middle of May. The dead ones had never been swept up, and yet you *could almost* walk across that cellar without stepping on one. When we remember that it is considered good wintering indoors, even if the cellar is completely covered with dead bees, the results I have mentioned are all the more remarkable.

The bees in the out-yard cellar are not doing quite so well, for the reason that a street-railway company have two or three times filled our drain, causing the water to back up. But we are sure of this, that Bingham's idea of ventilation through a shaft 20 inches square, going from the roof of the cellar on through the roof of the building above, is all right.

I believe bee-keepers have been making a great mistake in their house bee-cellars by not giving the bees fresh air, and lots of it.

N. B.—I forgot to say that rats have been getting among our bees. We arranged with a man who owns a ferret to come and clean all the rats from our premises. He has done this to our complete satisfaction, and he says it will be some time before they get back to trouble us. For particulars see page 81. Cats—well, many of them, to use plain English, are nasty around factory buildings, and only a few of them will tackle rats at best.

GLASS FOR SHIPPING-CASES—A BRIGHT IDEA.

It is well known by all bee-keepers that glass, during the last year or so, has taken several sharp advances. Although it has slumped a little within the last few days, the reduction in price is so slight that the problem of glass is still something serious to be considered. But, happily, our friend F. A. Salisbury, of Syracuse, N. Y., has struck upon a bright idea. He learns that there are quantities of glass from old negatives rejected by the people for whom they were taken, that can be had of many of the photographers for the mere asking, providing, of course, the artist has the assurance that no print will be taken from such negatives. The standard size used by the average photographer, and from which cabinets are made, is 5×7. Mr. Salisbury conceived the idea of gathering up a quantity of these, quartering them with a glass-cutter so that he would have four lights 2½ × 3½, or enough glass for one whole shipping-case with four rows of sections. This is the way he got at it:

He took some strips of section wood and cut the same in lengths equal to the width of the glass, and of the same thickness, and wide enough to make the proper spacing. Now, then, he slides a glass into the groove, and then a piece of the wood, or "button," as he calls it; then a glass and another button; still another glass and another button. In this way he gets in four little lights. The space between the lights is closed up by the wood, which, coming directly in front of the upright edges of the sections, helps to set off the honey to advantage—the little strips of wood, or buttons, covering up the often propolized section and the unsealed cells next to the wood. The result is at once neat and pleasing in its effect.

Mr. Salisbury finds that the trade, as well as bee-keepers generally, pronounce the four-light negative-glassed honey-case as neater in appearance than the old-style case with *one long glass* showing all the defects of the boxes of honey. Of course, when the glass is only 2½ inches wide the top and bottom grooved strips for the glass must be wide enough to take in the width. There are some who would feel that this 2½ width is too narrow; but as negative glass can be obtained so cheaply one can afford to cut it with some waste. The 3×4 size would make only a small waste; that is to

say, one can cut two glass lights out of one negative. But there may be places in the rural districts where negative glass can not be obtained. Then go around to your hardware stores and gather up all the scrap glass they will let you have. In some places they will be glad to have you take it away for it; in others you can get it for a small price. This, of course, would be in all sorts of shapes. But with a little practice one can, with a glass-cutter, convert it into squares rapidly and easily.

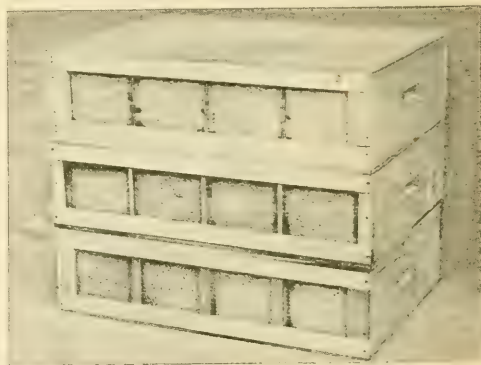
Mr. Salisbury says he can quarter 5×7 negative glass at the rate of 12 lights per minute, or 600 for one hour, or what I should suppose about 5000 per day. His 5×7 glass cost him 7½ cts. per 100. Cutting and washing at 20 cts. an hour would cost 6½ cents, or a total of only 14 cents for 100 lights, 56 cents per 400, or which would be equivalent to only 56 cents for 100 shipping-cases. The regular glass for 24-lb. single-tier cases, four rows, for 100 cases, is listed in the supply catalogs at \$2.50, or *nearly five times as much*. But suppose there are rainy days or bad weather when one's time is not worth 20 cents an hour. Then the 56 cents will be cut down still lower, or, in other words, what one saves he actually earns.

Those who have honey now to crate should try the experiment of negative glass, and thus work against the glass trust.

Oh, yes! I forgot to mention that glass for negatives is necessarily perfectly clear and white, without spot or bubble, or the photo-supply manufacturers would not use it.

HOW TO CLEAN NEGATIVE GLASS.

Mr. Salisbury explains that the trick is very simple. Into a kettle of boiling water he pours a quantity of potash; then throws in all the glass that can be submerged; allows it to soak a little, pulls it out and rinses it. The removal of the photographic film is very easy.



The cut shows first a shipping-case with one long glass; next, one with old 5×7 negatives quartered; and, last, 3×4 glass from the scrap obtained at a hardware store. The picture hardly does justice to the new idea.



CAN OUR BEES BE IMPROVED? SOME PLAIN
PRACTICAL SUGGESTIONS ON HOW IT
CAN BE DONE.

"Good evening, Mr. Doolittle. Awfully cold outside to-night."

"Yes, very cold; but not so cold as it was this morning, is it, Mr. Brown?"

"Well, perhaps not; but I see it was down to zero a little after sundown, and that is what I call awfully cold for the 7th day of December. What was it here this morning?"

"It was 6 degrees below zero here; 9 below at the Willow Dale Mills, and, I am informed, it was 22° below at Homer."

"Whew! that is the coldest I ever knew it thus early in the winter. And they tell me that Otisco Lake is frozen over the entire length of it, the ice being two inches thick—something never known to the oldest inhabitant. Have you got those bees in the cellar yet, over at the out-apiary?"

"No, and I am feeling quite concerned about them. To be sure, they are all in good condition for cellar wintering, but in just no condition at all for outdoor wintering; but as most of them have snow all about them, nearly up to the top of the hives, this will help some during this severe weather. No one thought that, with the night of Nov. 10, when our weather had been so nice for four weeks, winter could drop on us with the morning of the 11th. But so it was; and as the hives were all covered with snow, which was frozen on, I thought it best to leave them till it warmed up enough so the snow would fall off, and am still waiting. The fact is, it is a hard matter to tell just when is the right time to put the bees in the cellar, and it is as often perplexing to tell when to take them out."

"Yes, that is so; and I hope yours will not suffer materially from being out till a warm spell comes, which I expect before the middle of the month. But I came over to have a little talk about improving my bees. Do you think I can make any headway in the matter if I try? Neighbor Smith says he has tried for ten years with his, but he does not see that they are any better now than when he commenced."

"I fear Smith has not put the effort into this matter that he did when he made such an improvement with his cattle. He could easily see that a part of his cows were not nearly as good milkers as were others, and so he went to work to have all as good as the best, and he told me that he succeeded too. Can you see any difference in the gathering qualities of your bees?"

"Yes. Some colonies gather from one-third to double as much as others."

"And such is the case with very many bee-keepers, especially those who have ta-

ken no really advanced ground in trying to improve their stock. Probably there is not an apiary in the United States, containing twenty colonies or more, but that the owner thereof is compelled to acknowledge that certain colonies do better than others nearly every year in producing honey, unless said owner has taken pains to bring his stock up to a high point of excellence along this honey-gathering line. Were it otherwise, we should not so often hear it remarked, 'If the whole apiary could have done as well as such a colony, I should have had a big yield.'"

"But don't you think that the hive used, and the strength of the colony, have nearly all to do with this matter? Smith says that such is the case."

"I am inclined to think that the race of bees has the greater influence over these things, and that certain traits of character exist in certain colonies of bees that do not in others. If this is so, there is a chance of improvement in our bees, and I am inclined to think it will be to our credit in the future to work more for the improvement of our bees, even though we 'slack not our pace' on the improvement of hives."

"But how can we accomplish this improvement?"

"I know of only one way at present for the rank and file of bee-keepers to accomplish this, and that is through the queen. If we could control the drone, as we can the male in our other animals, the matter would be much easier; but as we can not control the drones to any great extent, we have only the queen to aid us materially in the improvement, as a certainty."

"Well, such being the case how shall we proceed?"

"I do not know that I can give you my views better than to relate some of my experience. A score or more years ago I began to turn my attention to this matter, and soon adopted the following plan: At the close of each honey season I struck an average of the number of pounds of surplus honey produced by the whole apiary; and then all colonies which did not come up to this average were marked. These colonies were united, either in the fall or spring, with others, which had produced an average amount, or above, if such uniting was deemed advisable, through colonies light in bees or scarcity of honey. If all were not disposed of in this way (of course I always destroyed the poorest queen and retained the other), I superseded the inferior queens by those reared from colonies known to have produced the very largest amount."

"But such a course would require the keeping of a record of each and all colonies in the apiary."

"Yes, and the keeping of such a record would be of much benefit in several ways besides the one I have spoken of."

"This keeping a record is something I have often thought about, and spoke to Mr. Smith about it only the other day. He said

he kept no record, and did not think it would pay so to do."

"Did you ask him if he kept any record of his cows when he was trying to improve them? It turns out as I expected. If Mr. Smith had been as anxious for the improvement of his bees as he was for the improvement of his cows he *would* have kept a record, and would have known that such a record paid with the bees as well as with the cows. Very little improvement can be made with the bees unless a record is faithfully kept of each colony."

"And it would not be a very serious job, would it, to keep a record of the number of pounds of honey each colony produced?"

"It is not with me. I have a piece of section tacked to each hive, and on this section I jot down the number of pounds of honey taken each time from the colony living within, and at the end of the season an adding of the amounts gives the yield from that colony. Some use a book, having a page for each colony, the hives being numbered, and a page given to each number. This may have the advantage that you can 'post up' the book evenings or on a rainy day. But the section plan is very good, as I know from experience."

"Do you keep any thing besides the honey-yield on this record?"

"Yes. Prolificness, length of life of the workers, whiteness of cappings, wintering qualities, etc., are all looked after, and all queens at all times are reared, as far as possible, from those giving the highest number of points along all these lines, and in this way any apiary can be kept steadily improving instead of holding its own or retrograding."



THE POTENCY OF THE MALE IN BREEDING: SOME THINGS WE DON'T KNOW.

Mr. Root:—In touch with an article on p. 778, where you ask how Dr. C. C. Miller knows that the father of the drone's sister does not exert some potent influence on the drone himself, and to which Dr. M. quotes from Dzierzon, in *Stray Straws* for Oct. 15, also some of his own knowledge of the other facts in the human race, I quote only from my own experience as a breeder of fancy fowls and cattle. I once bred a Jersey of a St. Lambert strain, and of registered stock, to a Holstein bull, and had a black-and-white calf, as I expected; and the same cow, bred to a full-blood Jersey the following year, brought a black-and-white calf, the very image of the Holstein sire used before. This trait shows up more in the breeding of dogs than in any other animal. I once owned a fine female pointer, crossed her with a spaniel, and for three litters af-

terward her young showed traces of spaniel blood. Why not the same in bees? One will often go into the poultry business with the idea of raising fancy fowls; but it is no small job to have your stock purely mated. I once paid a good sum for a setting of Brown Leghorns, and got a nice lot of mongrels. My watchword is, "Breed from the best in the stock," as well as in the poultry business; and if all is well in 1902, that is going to be my watchword in queen-rearing.

W. E. HEAD.

Paris Station, N. Y., Oct. 21.

[It is a well-established fact that the influence of the male may extend to offspring not sired by him, even for some time to come. It is reasonable to suppose, then, that a drone may be blood-related to his nominal sister. If this be the case an Italian queen that has met a hybrid drone might, and probably would, produce drones (as well as bees) having some of the characteristics of the sire; but if the Dzierzon theory is correct in every particular, then the drone in the case cited would be just as pure as his mother. There are some things here that are not proven yet.—Ed.]

DOOLITTLE'S FOUR COLONIES; A QUESTION ASKED.

Should not G. M. Doolittle, in that communication of his, "The Season of 1901," page 976, when giving his account of the comparative test of those four lots of bees as to the lengths of their tongues, and honey product, have furnished us an explicit statement of the quantity of bees and brood in each hive at the start? He has left us to assume they all started even, but he does not say so. The omission is a serious one. It renders the account given valueless. As to how it happened that he made the omission it would be idle now to inquire. A slight disparity at the start might make a greatly disproportionate difference in the results. The comparison made is not between the total amounts gathered by the several colonies, but between the amounts of their several surpluses over and above the quantity needed for support of each colony—quite a different thing.

How much honey will a colony consume when working twelve hours in the day, nursing, comb-building, ventilating, and on the wing?

W. C. EASTWOOD.

Whitby, Ont., Dec. 22.

[Mr. Doolittle says the four "were worked as nearly alike as possible." He might mean by this that they were nearly alike in brood and bees; but the statement, as you say, is not explicit. Of course it would make a great difference if there was a variation in the quantity of brood and bees.

As to how much we must allow for consumption, evaporation, etc., depends upon the strength of the flow. The loss will be from 25 to 50 per cent of the amount gathered during the day. See article by A. B. Cox in this issue.—Ed.]

CONFUSION OF BEES JUST CARRIED OUT OF THE CELLAR.

Are you troubled in the spring about the bees flying out of the hive when you are taking them out of the cellar? When do you take them—in the morning or in the evening? I have always taken my bees out in the morning, and have been bothered some about their flying out when I am taking them out.

WM. CRAIG.

Luce, Mich., Dec. 9.

[Bees will fly out pretty freely when put out of the cellar for the first time in the spring, especially if the day is warm, as it should be for setting out. A good deal of confusion results sometimes by the bees going into the wrong hive; but this hardly makes any serious trouble. It is sometimes advisable, if the weather-report indicates warm weather the next day, to set the bees out the night before at dusk, as they will then be able to calm down; but even the next morning they will fly out and get mixed up some.—ED.]

ROARING IN THE CELLAR.

I take the privilege of asking for information in regard to my bees. I have had my bees in the cellar under the house for the last month, but they do not seem to settle down. They are in a roar all the time, and some of them leave the hive and come up in the house. Not more than half a dozen have done this. The temperature runs from 40 to 50.

F. R. PALMER.

Carlton, Minn., Dec. 10.

[Roaring in the cellar is generally caused from want of ventilation. We would advise you to open the cellar at night, after it gets dark, and close it in the morning before daylight, providing in so doing you do not reduce the temperature too much. It ought not to go below 40 degrees nor above 60. The roaring may also be caused by too high a temperature. This stimulates an activity of the bees, causing them to consume a larger proportion of oxygen, giving off carbonic-acid gas, and vitiating the air. The remedy, as before explained, is ventilation.—ED.]

VENTILATION OF BEE-CELLARS; WIDE VS. LONG SECTIONS; SIDE-OPENING FENCES.

We have just completed a repository for 200 colonies. It is 20x20, 7 feet high. It is not a cellar, but an upper-ground affair. It is packed with 8 inches of clover chaff on sides, and 14 inches on top. It took 16 loads of chaff (a sixty-bushel wagon-box constituted a load). For ventilation a ventilator-box will be placed at the bottom, and a shaft at the top. A damper will be placed on box and shaft, which will be operated by an automatic regulator. When the temperature rises above 45, both dampers open, the cool air entering at the bottom, and crowding the warm and impure air out at the top. When the temperature

drops back to or below 45, the dampers close—no need of a person opening and closing the dampers. The regulator is supposed to do that.

What objection is there to a section one-third longer than the regular $4\frac{1}{4}$, or a section three of which will occupy the same space lengthwise in a super that four of the ordinary $4\frac{1}{4}$ do?

We have just been looking over your list to try to decide on a separator. We note what you say in regard to the fence giving freer communication than the ordinary sawed or veneer separator. When you first put the fence out we said that was one of the best moves you ever made in the surplus apartment. Now, if free communication of the bees sidewise is good, would it not likewise be a further improvement if the bees could have free communication endwise or all around?

H. C. QUIRIN.

Parkertown, O., Dec. 9.

[Your cellar 20x20, 7 feet high, ought to give fairly good results provided you put in not more than 200 colonies; but there should be a ventilator running up through the roof, at least 18 inches square, and so arranged that it could be closed during very cold weather. See Bingham's article on this subject in December 1st GLEANINGS, page 933. Our cellar, 12x20, $6\frac{1}{2}$ feet high, has only a six-inch ventilator, and we find it is not nearly large enough, and shall be compelled to enlarge it as the bees get uneasy.

One objection to sections one-third longer is that they would be odd-sized; and, again, the proportion would be wrong. If it is better larger, it should be tall rather than long or wide.

It would be an advantage to have free communication sidewise as well as through the separators or fences. Mr. Aspinwall, of Michigan, and H. H. Hyde and Louis Scholl, of Texas, have devised separators giving lateral communication. While there seems to be an advantage in having the sides open, it weakens the separators or fences to such an extent that they will not stand ordinary usage.]

QUEENS WHOSE BEES ARE ALL STRAIGHT FIVE-BANDERS.

I have this night had opportunity to look over Dec. 1st GLEANINGS, and it is with great surprise that I notice your statement on page 937, that you have never seen a queen that would produce all straight five-banded workers, and that the best average for one queen, perhaps, was 50 per cent, and as a rule 25 per cent of five-banded workers was all that could be expected.

I am very much surprised at that statement. If you have never seen a queen that would produce straight five-banded workers, will you please come to Floresville on the first opportunity presented? We not only have one queen, but we have several straight ones, and one in particular, whose bees are not only all five-banded, but some

of them, when filled with honey, show a glimmering of the sixth. What I mean by five bands is five broad distinct yellow bands, thus making the bees yellow almost to the tips. We are not the only ones having straight five-banded queens. There are two or three others who have them, and from whom we got our first stock. We have found these goldens to be good workers, and a very good bee for climates that have a short season, or where there is only one short honey-flow. For localities like our present one, where we have long seasons and several honey-flows, we find that they are not as good as the three-banders, or what we really prefer—the Holy Lands or Cyprians.

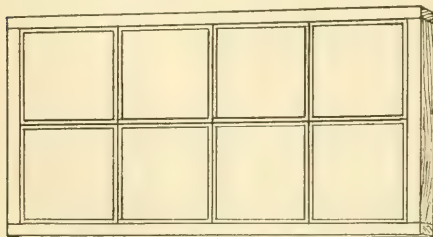
H. H. HYDE.

Floresville, Texas, Dec. 20.

[The facts are as I have stated them. If you have queens that produce workers *all* with five distinct yellow bands, then I stand corrected.—ED.]

UNFINISHED SECTIONS; EXTRACTING, AND HOW.

I see by GLEANINGS that some besides myself have been puzzled to know what is best to do with unfinished sections. Although in some localities little trouble is experienced, yet in places where the whitest honey is stored in the fore part of the season, and dark honey in the latter part, it is not practical to put dark sealed honey in the supers when the bees are storing white honey, making a "patchy-looking" comb. It is the custom of some bee-keepers to feed the unfinished sections to weak colonies in the spring. This, I have found, has its disadvantages. The sections become soiled, and are not suitable for storing the best grades of white honey in, when we need the unfinished sections most to get the bees started to work in the supers; and we can not depend on the bees uncapping all of the cells unless they are badly in need of honey. By uncapping it this difficulty is largely overcome.



MACK'S EXTRACTING-FRAMES FOR UNFINISHED SECTIONS.

A better way to dispose of the honey in unfinished sections is to make two frames as thick as the section is wide, and wide enough to take in two sections, and leave $\frac{1}{8}$ inch to spare, and long enough to take in four sections and leave $\frac{3}{4}$ inch to spare. Fill the frames with sections, and put them in the extractor. Turn the extractor at half speed; reverse the frames, and give it

full speed. Reverse again at full speed, and you will have 16 sections in good condition for the bees to store white honey in, early in the spring, when it is hard to get bees to make comb, when it is cool, and there are comparatively few bees in the hive; and if the cut with the uncapping-knife is deep, there will be no show of yellow cappings from the old combs. The work should be done while it is warm, and as soon as the honey-flow is over. If left until spring they will candy, and it doesn't extract the candy.

Probably the majority of bee-keepers who produce comb honey do not have extractors; but where one produces much comb honey an extractor is almost indispensable.

J. M. MACK.

Nellie, Cal.

[Many bee-keepers use the old-fashioned eight-section wide frame for holding sections while in the extractor. With the exception that it has projections to hang in the hive rabbet it is essentially the same thing as what you describe. It is true that the only practical way to extract unfinished sections is the one you use.—ED.]

REPORT OF THE ONTARIO INSPECTOR OF APIARIES; THE FOLLY OF BUYING AND SELLING OLD COMBS.

During 1901 I visited bee-yards in the counties of Bruce, Grey, Perth, Oxford, Waterloo, Wellington, Wentworth, Halton, Peel, York, Ontario, and Simcoe. I inspected 77 apiaries, and found foul brood in 29 of them, and dead brood of other kinds in many others.

Some bee-keepers secured the combs from others who had lost many colonies of bees, and, not knowing that these combs were diseased, brought them home and put them into use and spread the disease in their own apiaries.

When foul-brood matter dries down it glues itself fast to the lower side and bottom of the cells, and there it will remain just as long as the comb lasts, and in old dark combs the stain-mark left in the cells from the disease is not noticed by those who never had any experience with foul brood. It is when the disease becomes widely spread that bee-keepers wake up to the fact that their colonies have foul brood.

These mistakes which have so often ended in big losses from bringing diseased combs into apiaries should be a warning to bee-keepers not to deal much in old combs. No bee-keeper would bring a diseased comb into his apiary if he knew it contained foul brood; and the men who dispose of such combs do not know that they are diseased when they deal them off.

I received many letters from bee-keepers, asking me to visit their localities, and, while inspecting there, to stop with them. I was much pleased with the generous treatment I received from every person, and, in turn, I felt that I was in duty bound to help the people all I could in every possible

way besides getting their apiaries cured of foul brood, and I did so.

I am also pleased to say that nearly all of the largest and best-paying apiaries in Ontario are among the very many that I got perfectly cured of the disease years ago.

WM. MCEVOY.

Woodburn, Ont., Dec. 3, 1901.

TWO COLONIES IN ONE HIVE.

1. Do you think I can put two colonies of bees into one hive by placing perforated zinc between them, or do you think that the bees of one queen will kill the queen of the other bees? Have you ever united them in that way?

2. Do you think it would be best to put wire cloth between the two colonies?

3. Please inform me how to sweeten comb honey that has soured. I had some unsealed comb honey that soured. This is the first year that I have had that experience with comb honey.

L. H. LINDEMUTH.

Lehmaster, Pa., Oct. 7.

[1. I do not think it would be practicable or advisable.

2. You can use wire cloth successfully; in fact, we sometimes use three or even four nuclei all in one hive, separated from each other by wire cloth, each having a laying queen.

3. I do not know of any remedy, although *extracted* honey can be improved by boiling it.—ED.]

WHY THE BEES BALLED THE QUEEN.

I was examining a hive of bees with ordinary precaution, when I discovered that the bees had balled the queen and were stinging her to death. I removed the queen for a few hours, and upon returning her I found she received the same treatment as before. This queen was brought up with the hive of bees, and I do not understand why this case should occur. As I have never heard of or experienced the same before, I have taken the liberty to write you in regard to the matter.

BION B. WHITNEY.

Standish, Maine, Oct. 22.

[It sometimes happens that bees will ball their own queen. I have sometimes thought that the opening of the hive, or some peculiar disturbance, irritates them to such an extent that they lay the cause of their disturbance on the poor queen, and thereupon proceed to wreak vengeance. Again, a virgin queen from some other hive may get in, and this is the queen that is balled. Sometimes the newcomer is accepted, and the old mother that has been doing duty faithfully for two years is ruthlessly balled, and stung to death. The regular accepted mothers that have been found balled have been left to their fate by the apiarist. Examination days afterward showed that she was all right, and doing her regular accustomed duty. This would seem to indicate that

they had somehow "settled their differences."—ED.]

CARBOLINEUM PAINT, AND WHERE TO GET IT.

Tell Dr. Miller he can get carbolineum avenarius close at home, in Milwaukee, at about 65 cents a gallon, or cheaper still in large lots. It can be mixed with red mineral paint or the dry colors, rather; but if mixed with white lead it will look as a coat of varnish would over outside white.

Bard, Ark.

H. ZEINER.

BEE-KEEPING IN SPOKANE.

Friend Root:—Herewith I would answer friend J. O. Haynes as to the possibilities for bees and honey at or near Spokane, Wash. I went from here to Washington 7 years ago with 110 colonies of bees. I intended to locate at or near Spokane; but I could find no place where a bee could make a living, to say nothing about laying up any surplus all through the latter part of the season, as they can not irrigate, nor have they enough rain there to make flowers grow. The Yakima Valley is a better country for bees, but that is already occupied, and that country is full of alkali water, and is very hot in summer. But if our friend wants to come back here, I will sell him my little fruit and bee farm with plenty of soft water, and a healthy and cool climate—just the thing for friend Haynes.

J. P. BERG.

Traverse City, Mich., Nov. 25.

MORE PARTICULARS CONCERNING THE EUROPEAN BASSWOOD.

There are several distinct varieties—*Tilia parvifolia*, Ehrh., the small-leaf lind, also called the late lind. This is the plant for the bees. The tree attains an age of more than 1000 years, and a height of 60 to 70 feet. Near Neustadt, in Germany, is a lind which has a circumference of 32 feet, and was well known already in the year 1292. On account of their dense foliage and fast growth they are extensively planted on streets and roads. The wood is fine and soft, but strong; insects do not seem to like it, therefore it is much used in fine arts for carving, etc. The inner bark furnishes good bast for ropes and mats. It is a hardy tree, blooming in Germany in July till August. I think it would do well all over the United States. The flowers stand in clusters of five to seven, and therefore are easily distinguished from *Tilia grandifolia*, which bears clusters of two to three flowers. The leaves of *Tilia parvifolia* are naked on both sides, and on the under side gray-green. The flowers are much used for making a good tea for catarrh. When in bloom they are always covered with bees.

Tilia grandifolia, Ehrh., the large-leaf lind, is at home principally in Hungary. Its leaves are on both sides green, but on the under side have short fuzz; bloom in June to July, and are considered to be two

to three weeks earlier than the first-mentioned variety. It is used as an ornamental tree.

Tilia platyphyllos is another variety, sometimes used for ornamental purposes.

All varieties have one common flower-stem attached to the middle of a long leaf, similar to our American variety.

I will try to get some seed of *Tilia parvifolia*, which alone should be planted as the best of the above varieties.

Visalia, Cal., Nov. 24. O. LUHDORFF.

ALFALFA FOR HONEY—A CAUTION.

Last August I wrote, giving some suggestions about sowing alfalfa, and I also spoke of getting honey from it. Since then I have had several letters of inquiry about alfalfa, the amount of honey it yields, the price of land here, etc. Although alfalfa is one of the greatest if not *the* very greatest honey-plant known, do not build too high hopes on it or migrate all of a sudden to an alfalfa region, simply for the reason that, in future, very little honey will be obtained from it, owing to the fact that, unless it is left for a seed crop, it will be cut just as it commences to bloom. In my own alfalfa I notice the bees do not commence to work much on the flowers until the latter have been in bloom some time. According to tests made by our Kansas Agricultural College, the feeding value of the hay is much greater if cut when only a tenth of the plants are in bloom, and nearly all will be cut in this locality at about this time in future, and only those who raise it for seed can be depended on, and that would not be many. Land here is very high. Good valley land is worth \$60 an acre, and some still higher, up to \$100, according to locality.

M. F. TATMAN.

Rossville, Kan., Dec. 25.

[I have already referred to the tendency on the part of alfalfa-growers to cut their alfalfa before it is fairly in bloom. If this practice becomes prevalent (and there is grave possibility of it), localities that yield large quantities of honey from it will prove to be very poor if not utter failures.—ED.]

SCALE RECORD OF A COLONY.

I wish to make a report now of one stand of my bees. In my last report they were in a starving condition. I was feeding. About July 10th I noticed they were gathering honey, and I stopped feeding. On the 20th I placed one hive, a two-story Graham, on the scales, and balanced them by adding weight at 100 lbs. My 50-lb. weight being lost, I had to make it up to 100 lbs. Since then I have secured another 50-lb. weight, and am weighing at actual weight now.

July 20, 8 a. m., 100 lbs.

July 20, 7 p. m., 102½ lbs.

July 21, 5:44 a. m., 102¼ lbs.

I lost ¼ lb. by evaporation during the night, the dry weather being intense, not much water.

July 21, 7:42 a. m., 102 lbs.

There were 4 oz. of bees flying out; colony not extra strong.

July 21, 7:30 p. m., 106 lbs.

July 22, 5:10 a. m., 105¼ lbs.

July 22, noon, 106¾ lbs.

July 22, 4:23 p. m., 107 lbs.

July 22, 7:20 p. m., 108 lbs.

July 23, 5:25 a. m., 107¾ lbs.

July 23, 7:00 a. m., 107 lbs.

I extracted here 21 lbs.; removed extra weight.

July 24, 1:45 p. m., 70 lbs.

July 24, 6:00 p. m., 70¼ lbs.

July 25, 7:30 a. m., 70 lbs.

July 25, noon, 71½ lbs.

July 25, 8:35 p. m., 74 lbs.

July 26, 8:54 a. m., 72 lbs.

July 26, 7:38 p. m., 75 lbs.

July 27, 6:20 a. m., 73½ lbs.

July 27, 1:30 p. m., 76 lbs.

July 27, 7:20 p. m., 79 lbs.

July 28, 7:40 a. m., 78 lbs.

July 28, noon, 80½ lbs.

July 28, 7:30 p. m., 83½ lbs.

July 29, 5:56 a. m., 82½ lbs.

July 29, noon, 84½ lbs.

July 29, 7:15 p. m., 88½ lbs.

July 30, 6:00 a. m., 87 lbs.

July 30, 1:30 p. m., 89½ lbs.

July 31, 6:00 a. m., 91 lbs. Rain.

July 31, 6:30 p. m., 91 lbs.

Aug. 1, 5:30 a. m., 90 lbs.

Aug. 1, noon, 91½ lbs.

Aug. 1, 7 p. m., 94 lbs.

Aug. 2, 5:30 a. m., 93 lbs.

Aug. 2, noon, 96 lbs.

Aug. 2, 7:30 p. m., 97 lbs.

Aug. 3, 6:00 a. m., 96 lbs.

Aug. 3, 7:00 p. m., 96½ lbs.

Now, in the above you will see they lost from ¼ lb. at night to 2 lbs. Rain interfered a little, and extracting stopped them a little. Aug. 2d I put on four sections between upper and lower stories; and I suppose they consumed some in wax-working, as they lost weight. I will continue the experiment, and report further.

Ladonia, Texas. A. B. Cox, M. D.

[These figures are quite interesting. Although there are no phenomenal yields per day, the consumption of stores at night is suggestive. It shows how much may be thrown out by evaporation, even on small yields per day, for I assume that the principal loss is the evaporation.—ED.]

ANOTHER PROTEST AGAINST THE SAWED-OFF HOFFMAN FRAME; THE V EDGE DEFENDED.

I can indorse all that is said by Mr. H. H. Hyde, Nov. 1, in regard to the sawed-off staple-spaced Hoffman frame. Hives warp too badly here for that kind of arrangement. I have a strip ¼ inch thick in most of my old hives, to keep the frames from dropping down below the rabbet, and they have full-length top-bars too; and, besides that, I want the ends of the top-bar to lift

the frames by. I have taken particular notice that I *always* hold the frame by these projecting parts of the top-bars. The rest of the top-bar is generally covered more or less with bees.

In regard to their popularity in this locality, I can say that they are not in it at all. I have yet to find the first bee-keeper who likes them. The V edge on the end-bars is all right. I used some square edges, as suggested by Mr. Hyde, and found that propolis would accumulate on them and cause the spacing to get wider and wider each season until I could not get the follower-boards in. By using a little pressure the V will cut through the propolis when warm, so that the same spacing is maintained. I have used frames with top-bars $\frac{3}{8}$ thick and $1\frac{1}{8}$ wide, with inverted comb-guide, for four years, and like them better than any other style. They do not sag, and are more profitable to me than thick top-bars. W. C. GATHRIGHT.

Las Cruces, N. M.

[As I have before stated, we and all the manufacturers are prepared to make top-bars of any length desired. In fact, we keep the long and the short top-bar on hand as standard stock. Let us have a free expression of opinion. Don't hold back your own individual feelings and experiences because you do not happen to agree with the editor.—ED.]

THE SCENT OF BEES DURING SWARMING.

I observe in GLEANINGS for Aug. 1, 1901, p. 639, a most interesting subject by F. W. L. Sladen, on the scent-organ of the bee. Isn't it strange, without knowing anything of the organ, that I discovered about the scent by accident? I had five swarms issue at intervals in one day, and the first three clustered on the *same* limb each time. This set me to thinking. I experimented on certain lines for a time, and now I can say positively that I have found a way of stopping about 90 per cent of the swarms issuing in an apiary. As soon as I am sure a colony is swarming I grab up three or four bees at the entrance of that hive, and, crushing them, rub them on a strip of black cloth. Hoisting this among the circling bees they soon settle on the cloth. To save stinging, grab up with cloth. I never knew any thing of the Zoubareff organ, but I can easily understand why the crushed bees and black cloth have a talismanic effect. LESLIE ALEXANDER.

Malvern, Jamaica, B. W. I.

[It is well known that, where a swarm has once clustered, there is a great probability that another one will lodge in the same place. There is no other cause for this than the scent left by the previous swarm under the full heat of the swarming impulse. Mashing a few bees on a cloth or some other object might have the effect of drawing the swarm. But better—far better—would it be to draw the cloth or branch, or whatever is used for clustering, right

through the bees after they have clustered, raking it back and forth slowly until the object itself has become thoroughly scented.—ED.]

THE DOUBLE COVER NOT SATISFACTORY. AND WHY.

I notice considerable is being said in GLEANINGS recently in reference to hive-covers, and I am somewhat surprised to learn that so many of your correspondents are in favor of the double cover, as in this locality I find them to be a nuisance, especially by affording a good nesting-place for ants and other insects, making them very disagreeable to handle. I'd rather handle the little black bees than ants. I have ten or twelve hives with double covers in my apiary, that I bought about 15 years ago, and every spring I find them full of ants, while my single covers are never, or at least scarcely ever, troubled by them. Many old apiarists may say ants do not amount to much any way—that they do no harm in the hive, and, if they do, it is an easy matter to get rid of them. These fellows may be right; yet I find it very disagreeable, when taking off covers, to have thousands of these little black ants swarming all over me, and biting like little bulldogs, as they often do when I move a double cover, obliging me to change my clothes and drown them out of the covers before I can continue my work.

Swanton, Neb.

L. O. WESTCOTT.

[It is certainly true that ants are much worse in many parts of the West and South than here in the East; but, even if this be true, the two-thickness cover should give satisfaction if it be properly made. We make one style of double cover that we will guarantee to be ant and vermin proof, because it is provided with side cleats to close up the side openings. I quite agree with our correspondent in saying that the *ordinary* air-spaced cover would, for his locality, be very unsatisfactory.—ED.]

A HANDY APIARY TOOL.

Mr. Root:—I wish to add a handy tool for the apiary, to those illustrated in the August 1st number of GLEANINGS. It is a vineyard pruning-knife, with an edge put on the front end and the temper partly drawn so it won't snap off in prying. To separate supers, place the point of the knife at the joint; tap the back with the palm of the hand, to force it in; then either pry down or lift up, and the slightest effort will separate any hive. To separate frames, insert the edge between the frames and then turn the handle sidewise, and apart they come, no matter how badly glued. To get out frames that are stuck, insert the end under the top-bar, pry backward and up, and the frame must come or break. To take off a cover, insert the end under the front strip, and then lift, and the least effort brings the cover up. The back will drive a nail, the front edge will scrape off

propolis, or act as a screwdriver; it will also clean off the frames, split a board, or any other hatchet work, while the leverage is so strong that an ordinary nailed hive can be pried apart with it. It is a veritable little crowbar. I would not keep bees without it. This is a home-made knife, the blade being forged from an old file, and tempered so that it will not break in prying.

I notice Rambler has trouble in getting his wax out of the cans. If he will set his can and wax in boiling water for a minute the wax will then slip out; or, if the can is too big for that, lay the can on the stove and turn it round and round till the wax is melted on all sides, and then chuck it, when the wax will slip out.

Murphys, Cal. E. H. SCHAEFFLE.

A SELF-SEALING TWINE FOR HIVES IN THE SPRING.

Get some fuzzy cord and soak the same with some pasty compound, and sell the same for hive-sealing, and you will find a sale, I think. The cord must have a soft texture, and the compound must seal air-tight, but must not stick like glue. I would send a sample, but have not the necessary compound. Bees need air-tight quarters in early spring, and when they have to gather propolis it gets them into bad habits and loses time.

A. D. WARNER.
Warsaw, Va., Oct. 11.

A SUGGESTION FOR WHEELBARROWS FOR APIARY USE.

In reading in GLEANINGS about wide tires on wheelbarrows, it occurred to me to make a wheel with a three-inch tire, and, instead of a heavy wood rim to fill it, why not make a steel shell, of the proper shape and width to fill the tire, and prevent the sand loading in? A shell could be made something like the rims that were used on bicycle-wheels for cushion tires. The shells could be very thin and light, if made of good material, and could be put on over a narrow wooden rim. It would increase the cost a trifle, but such a wheel would work well on sandy soils.

GEO. E. WELLS.
Roseland, N. C., Oct. 14.

[Unless there should be a very great demand, such a tire would be very expensive. It would, as you say, be a good thing on some sandy soils.—ED.]

A STANDING JOKE.

I have a stand standing on the stand where it was standing last year. I want to destroy this stand and put another stand in its stand, and yet the stand is good and would stand for years where it is standing were it not for the stock of the stand.

Chicago, Ill. J. T. HAMMERSMARK.

[I commit you to the tender mercies of Dr. C. C. Miller. He may fire a Straw at you from his Straw-stack; so, beware of

the straw that broke the camel's back.—ED.]

SCREW EYES FOR FRAME-SPACERS.

I am interested in the discussion of a simple spacing-device for brood-frames. Instead of the staple suggested on page 890 I would prefer a screw in the form of an eye (hook and eye). I think this has the advantage of a staple. You can screw it in with your fingers, and you can regulate the spacing conveniently. W. S. SHEPHERD.

Shaker Station, Conn., Nov. 28.

[But you will find, if you try them, that a size having the right head to bring about the proper spacing would be so small it would be very frail. The staple has the advantage of *two* legs, while the eyes would have only one leg, and that a screw. There would be another disadvantage, in that it would be a very slow job to attach such spacers to frames.—ED.]

MOVING BEES IN WINTER.

I have a few hives of bees I desire to move about 40 feet. When would be, in your judgment, the best time to do it, with the least loss of bees? W. H. KERR.

Crawfordsville, Ind., Dec. 5.

[The best way for you to move your bees would be to put them in a cellar and keep them over winter. When you set them out next spring, set them in the new location, and all will go well. If you leave them outdoors, and then attempt to move them, when the first warm day comes they will be likely to go back to their old location; while if they were confined several months to the cellar they would go back to their hives no matter where they would be.—ED.]

BEES LEAVING THE HIVE BECAUSE OF PAINT.

Do any of the GLEANINGS family know any thing about "powder paint," or a water paint called "Acme," "Crown," etc.? I painted two hives with it, and the bees left, though there was brood in the combs. The entrances were rather too large, though. This paint is "not designed for roofs or inside work," as the advertisement states, so I thought it might be poisonous.

Corona, Cal.

W. S. RITCHIE.

[I should doubt very much whether the paint had any thing to do with it. If you try it on other hives next summer, I think you will find the bees will stay in them just the same.—ED.]

DISAPPEARANCE OF QUEENS.

Answering S. Longmir's inquiry, page 715, disappearance of queens, this is caused by a quick short flow and sudden cessation, bringing about exact superseding conditions. It always happens in bad years, or years with many interruptions in the honey-flow.

Vigo, Texas.

J. E. CHAMBERS.



If it be possible, as much as lieth in you, live peaceably with all men.—ROMANS 12:18.

When I started that new home in the woods I have talked so much about, I told you I resolved to have pleasant relations with all of my new neighbors if it was a possible thing. Then there was another big reason why I should set a good example before this people, in avoiding anything that had the *appearance* of jangle or ill feeling. When I gave them a talk in the little church one Sunday evening I used for my text, "Love ye your enemies; do good to them that hate you." I spoke about returning good for evil, and conquering even bad people by love. I had a pretty good houseful to talk to. Now, after that talk it would look very bad indeed for me to have difficulty or disagreement with any one in that vicinity. These good friends would be sure to tell me to practice what I preached on that Sunday evening. They would be sure to say, "Mr. Root, you have told how you triumphed over enemies and all other difficulties away down in Ohio, and we shall expect, of course, you will demonstrate the correctness of your teaching by the daily life you live here among us."

You see I had not only gone *through* the bars, but I had *put them up behind me*, as it were. Once when I was talking to a class of rough boys, and striving to show them the beauty of returning good for evil, and turning the other cheek when somebody strikes you, one youngster said at the close, "Mr. Root, do you mean to say that, if anybody hits you, you are not going to hit back?" I told him I should try hard not to hit back. He drew in a long breath, and his face expressed that he thought it was a pretty big undertaking, and added, in an undertone, "Well, *may be* you would; but I should like mightily to see somebody try it on you."

I have often thought of this remark. I do not know that I have had any downright *blows* to test my temper from that day to this; but I have had some pretty severe trials, or at least so they seemed to me.

Now, I wish to tell you a little story; and may God give me grace to tell it without bias, and without letting selfishness creep in to make me screen myself and lay the blame on my neighbor more than it should be laid on him. As I undertake this task I know my weakness. Thousands of times I have tried to tell of some difficulty I had with somebody, and to tell it ingeniously—to tell it without screening myself, and without laying more blame on the other party than he deserved. I tell you, friends, this has been a hard thing to do. You have some complicated transaction with a neighbor. It is as natural as to breathe to tell people

who inquire about it, how *good* and *fair* and kind *you* have been in the whole matter, and how selfish and unjust and unfair your opponent has been. Without meaning to, you tell everybody what an exceedingly good man *you* are, and what a very bad man the "other fellow" is. Selfishness keeps following me up, coming close beside me—yes, even whispering over my shoulder, suggesting certain words and expressions that will just about fill the bill. Just as soon as I begin to tell the story I find he (self) is right at hand, and before I know it he is getting in his work. I chase him off, and think he is clear out of the neighborhood; but just as soon as I become once more absorbed in my topic he is there when I least suspected him. It makes me think of a dog that belonged to a bee-keeper whom I was visiting. He was not going to let me come in the gate; but after the family had called him away he kept slipping back noiselessly, and sniffing at me, smelling of my feet and clothing in a sort of snarling suspicious way. The family remonstrated with him, but he seemed to think he knew what sort of a chap I was better than they did. (I have wondered sometimes if he was not right and they wrong.) He evidently did not like the *smell* of me; although I have always *tried* to keep sweet and clean, especially when I was visiting bee-keepers. They ordered him away several times. Finally my good friend the bee-keeper told me to give him a good kick and then he would go off and *stay* away. Well, he had annoyed me so much I could have kicked him with exceedingly good grace; in fact, I fairly ached to give him "one" under the chops. I just *craved* to hear him go *howling* off with pain; but you know it would not look well for A. I. Root, after all his talk and teachings, to be seen kicking viciously at a dog, even if the dog's owner had advised so doing. So I put up with it and actually forgot all about the dog several times, when all at once I became conscious of something touching my clothing—first one spot and then another; and then the folks would say, "Why, what does all that dog? We never knew him to hang around one like that before, and to be so suspicious. Usually, after he has satisfied himself that somebody he had not seen before is all right, he goes and lies down, and behaves himself."

I declare, I do not know but I am almost "giving myself away" in telling this little incident; but it can not be helped. To-day, at least, I want to stand honestly before you all. May be I have some good traits. If so, I thank God for them; but there are lots of grievous imperfections, and may be your sympathy will help me to do better if I own up. I am now going to try to tell you my story; but the temptation all through will be so great to make it appear that I am a very fair and liberal sort of man I am afraid it will be biased in my favor *in spite* of any thing I can do. Satan, in the shape of self, will be hanging around me

all the way through (just like that dog); and even if I should stop my story to chase him clear off the farm, or even clear out of the county, I am afraid he will be back the next instant. And by the way, dear friends, it has occurred to me that the prince of darkness travels, especially when he is up to mischief, about as fast as the electric waves Marconi has invoked; and with this long preface I will begin my story.

Last spring I was planning, as you may know, to have a summer outing in the Traverse region, and I was very anxious indeed to have a couple of acres of potatoes on that forty acres in the woods. I wrote to my young friend Orville to find somebody, if he could, who would plow the ground on that piece that had not been plowed for over twenty years. I told him, also, to get a man somewhere in the neighborhood to cut down the sprouts and grub out the roots so as to get the land in fair trim. But the teams and farmers were all so busy he said he did not know whether he could get anybody or not. Along toward July he wrote me he did not believe he could find anybody unless it was one man near by who *might* get around to do it. Another thing, I could not get away from home, and so, even if the ground was plowed, I should not be there to plant it. I wrote to Mr. Hilbert that if Orville *should* get the ground plowed, and if he had time and any potatoes left after his own planting, to get in some potatoes on my place if he could. If he could not do so handily, let it go and I would sow the piece to clover in August, as many farmers do in that region.

Well, one beautiful morning along the latter part of July I called at Mr. Hilbert's, and one of the first questions was as to whether any plowing had been done. He said he really did not know. If it had been done he was too busy at home to do any thing with it. I then said if it was plowed I would put in clover; if not, I would try myself to have it done. Then I went away with a light heart through the well-known path down through the woods, wondering if I should see some plowing done over by that spring or not. To my great surprise, I found not only a plowed field of toward two acres, but a growing crop on it. Part of the field was planted to beans and the rest to potatoes. In much surprise I went over to the residence of Orville, whom I had employed to look after my property. Now comes the part of my story that is going to test my ingenuousness. May God give me grace. Orville said the man who did the grubbing put in the beans and potatoes. We will call this man Mr. Brown, for convenience. Orville said he told him he had better not do it without writing to me. Mr. Brown replied that, if he took time to write me, it would be entirely too late to get in beans or potatoes either. He further said that he understood from one of the Hilbert family I had written to Mr. Hilbert that I was too busy to get away, and that Mr. H., or anybody else might have the use of the

ground if they would plant it. You see it was comparatively new ground, and considerable labor would be needed to keep the crop in any kind of condition; and this first crop (at least so Mr. Brown thought) would break up the tough sod so as to fit and make it really better for the crop another year.

Now, Mr. Brown's statement was pretty near the truth, but it was not quite the truth. Very likely he so understood it. He did not see Mr. Hilbert himself, because Mr. H. was absent; but he did see Mr. Hilbert's son. The latter had not seen the letter I wrote—he only knew I had written something; but young Hilbert did not know any thing about what I said about putting in clover in August. Well, I was rather glad to see a crop on the ground, even if it was not mine. I supposed that, of course, Mr. Brown expected to give me some sort of share for the use of the ground, for I had paid \$8.25 for having it plowed. Now, I confess I felt a little surprised and somewhat hurt when Mr. Brown said that he had not intended to give me any share, as no crop would have been on the ground if he had not taken hold of it. In fact, he said it would not even have been *plowed* if he had not volunteered to help the man by cutting the roots and small trees out. At this I said, "Well, Mr. Brown, you put in several days, as I understand it, in grubbing and cutting out the roots, etc. Of course, you will allow this as rent for the use of the ground." To my surprise, he declared that I would have to pay him some five or six dollars for this work, as I had agreed, besides giving him the use of the land.

Now, do not be too hard on Mr. Brown. I think I could take his side of the case, and make it look pretty fair and reasonable. By the way, when I gave that little talk in the church Mr. Brown and his wife and children were all present. The question that confronted me was not what would be fair as *men* generally do business; nor was it what would be fair according to the opinion of the neighbors or those who knew of the transaction. The question that confronted me was what course I should pursue that would be most pleasing in the eyes of the great Father above. The old patriarch Abraham, in pleading with God, said, "Shall not the Judge of all the earth do right?" I like to think of this, and I like to think that the same great Judge who can not err is watching *us* with loving kindness. Shall not we in like manner *do right* in his sight? On page 650 of GLEANINGS for August 1, last year, I alluded to this transaction. I spoke about kneeling on the summit of that big hill as the morning sun was just shedding its beams over all that part of the earth. I told you of praying for this brother, and that in a few minutes more the matter was pleasantly settled. I will tell you now how it was arranged. I went down to Mr. Brown's and told him that the matter of his crops on my land was

left unsettled the day before, and that I should like to take it up again. He said, "All right."

"Mr. Brown, when you decided to plant the beans and potatoes on my ground, without my knowledge or permission, you must admit that you 'took your chances'—at least to some extent—as to whether I would be pleased or displeased with what you did."

"Yes, Mr. Root, I did, as you say, 'take my chances.'"

"Well, I am sorry to feel obliged to say that I am not pleased, especially as I had planned putting in clover, and now your crop is in the way."

He replied I was right, and that he had not been told any thing about my plans for clover. Of course, he would have to stand to whatever arrangements I made. I then told him that, if he would give his bill for the work of helping the man plow the ground, as rent, we would call it all settled. He said that was all right, and he worked for me quite a little during the summer, and our dealing was all quite satisfactory, for he was a very skillful man, and in many things a very efficient helper. The neighbors got hold of the matter, however, and several times I was questioned about it. Two or three times I spoke well of Mr. Brown, and said the whole transaction was fixed up satisfactorily to both of us. Now, I should have *stuck right to this*, and should not have listened to anybody who wanted to take my side in the matter, and to prejudice me against Mr. Brown. That is one of my weak points, and I am afraid it is a weakness of all the world. When you have had trouble with a neighbor, and it has been fixed up, even if only fairly satisfactory to both sides, for goodness sake, *let it drop*. Do not rake it up again. Do not let anybody, by expressions of sympathy, induce you to go over the ground any more and tell you how *you* did and how *he* did.*

Let me add that, when the subject was dropped, I remarked, on leaving, "Now, Mr. Brown, as I shall give up putting in clover, I think I will try to get in some rye after you get off your potatoes and beans, and I hope you will get them out of my way just as soon as the crop is ready to harvest, or as soon as it is injured by frost."

If I mistake not he said he would do so, of course. During the last of October I plowed up the land adjoining, sowed my rye, and when a killing frost came I urged him to get off his stuff so I could finish my fall work and go back to Ohio. Just at this time a vessel came up to the dock for a

load of lumber. He is an expert in this line of work, and gets 40 cts. an hour for it, while I paid him only 15 cts. an hour for farm work. But I had engaged a man to plow up the two acres and put in rye when the ground was ready. I did not expect him to drop his 40-cents-per-hour job, but I went down to the dock and asked him if he would permit my men to dig his potatoes and pull his beans if we would do it at a very low price. He objected, for the reason that, when he was through loading the boat, he would have comparatively nothing to do. Meanwhile his good wife, however, with the help of the children, pulled the greater part of the beans, so my man got in with his plow on his \$8.00 job. When he was ready, however, to get on the potato ground, Mr. Brown was thrashing the beans, and did not want to stop. My plowman lived several miles away; and if he did the job for \$8.00 he wanted to finish it right up while he was there with his tools. I went down to see Mr. Brown while he was thrashing the beans, and explained the circumstances. Said I, "Mr. Brown, if you would let your beans go for the present, and get those potatoes out of the way at once, it would save your neighbor, who is plowing, quite a little annoyance, and also quite a little money, unless I pay him for going home and coming back."

He replied that the neighbor in question had not been in the habit of doing him a kind act when he could as well as not, and therefore he would not trouble himself.}

"Mr. Brown, do you not believe in the good book which says, 'Love ye your enemies, and do good to those that hate you?' Don't you think it pays to return *good* for *evil* among your neighbors?"

"Why, Mr. Root, I used to believe in that sort of doctrine, and I have followed it up all my life so far; but it has just made me a poor man, as you see, and I think now I will give it up and try the other way."

I had to laugh at this, because I could not believe he was in earnest. Said I, "Mr. Brown, I *too* have tried both ways; but rendering good for evil has not made *me* poor by any means, and I am sure it will not make you poor if it is followed out consistently."

I had to give it up. I waited his pleasure in digging the potatoes. Some of the neighbors advised me to go on with the plowing, and turn the potatoes under, when they were worth 75 cts. a bushel. Of course, I could not consider such a plan for an instant. Wasting his potatoes, or making it ever so much more work to get them, would have wronged his wife and children; besides, it would have made troubles and jangles in the neighborhood for a long time. Our families had been on very friendly terms. Mrs. Brown, only a few days before, sent us a large basket of the nicest tomatoes I think I ever saw. The children to and from school pass very near our house, and often brought our mail. What a foolish thing it would be to make bad feelings

*Our pastor recently gave us a sermon on the text, "Love ye your enemies," etc. At the close he alluded to the 17th verse of the 18th chapter of Matthew, where we are told that, if one will not listen to the church (or to arbitration), we are to give him up as a heathen. He said whenever we do meet a case as bad as that we should be very careful to drop the matter then and there for ever. Do not go around telling it to the neighbors; do not mention it any more, even before the family, and I think this advice is very much needed everywhere. "Least said soonest mended" is a grand maxim.

all around, and do a wrong to innocent parties, just for the sake of saving a few dollars and getting a crop of rye in a few days earlier! Mr. Brown very soon got at his potatoes; and when he did, they came out in a hurry.* I had a boy working for me at much less pay than I gave Mr. Brown. He said if I would let the boy help him get the potatoes out he would give me a day's work of his own in exchange for the boy, even up; and the matter ended pleasantly. I think—oh how much more pleasantly than if I had asserted my rights and practiced something I did not preach or teach on Sunday! No doubt Mr. Brown could mention some things I did that were not very kind and not very wise; but I think he feels friendly enough toward me now so he will not feel hurt, even if he should see this in print; and I hope he will realize, with all the rest of you, that I have told this little story only because it shows how easily neighbors may quarrel if even one of them harbors a disposition to return evil for evil; and it shows, also (at least I hope it does) how easy it is to get along pleasantly where even *one* of the two parties concerned (you know it takes *two* to make a quarrel) really believes in that beautiful text that says, 'Love ye your enemies, and do good to those that hate you.' Conquering by kindness instead of by force and hard words or blows, is one of the very foundation stones of the gospel of Christ Jesus which he came to proclaim here on earth to a sinful world.

LYNCHING, ASSASSINATION, AND OTHER ACTS DISREGARDING THE LAWS OF OUR LAND.

I am sorry GLEANINGS could not say one word concerning the assassination of the President of the United States. J. G. BROWN.
Greentown, Ind., Jan. 1, 1902.

My good friend, it was not because I did not have any thing to say that I was silent. But somewhat, perhaps, because there has been so much said about it in every periodical one picks up. Perhaps I am rather late about it, but there is one thing that ought to be said, and yet I have not found very much said about it. When the lynching business got to be so bad, and especially when people, not only in the South but in the North, East, and West, seemed to think it was *the* thing to take the law into their own hands, and even *put a man to death* where a lot of people thought he ought to die without judge or jury—ever since these things have been getting to be so common, and especially as many good people seemed to think there was nothing so very wrong about it, I have had a feeling

*By the way, friends, the next time you have trouble with a neighbor, instead of dwelling on unpleasant memories of times past, just set about hunting up the good things, or the favors that he and his family have shown you. Hold up the good traits, the pleasant transactions, and push the others out of sight. Keep self and selfish interests away off. Chase them away as I did that dog—oh, no! I did not chase him, after all; I only wanted to, but feared it would not look dignified.

that, sooner or later, we should *reap what we have been sowing*. As soon as I heard of the President's assassination, I said at once that was the outcome of the lynching business and *other* growing tendencies toward anarchism. It rejoices my heart to see how universally anarchy and every tendency toward it is being condemned, and I hope the people of our land will catch on to the fact right speedily, that lynching is anarchy and nothing else. It is condemning a man and putting him to death without trial; and oftentimes the hanging or burning at the stake is done by some wretch or set of wretches who are but little better at heart than the man they are putting to death. Let us uphold the laws, and set a good example by obeying them. If the laws are bad or slow, go about it in a loyal and orderly way to right the wrong. But let us not do any thing contrary to law, nor in any way *ignore* and *trample under foot* our laws.

THE UNITED STATES DEPARTMENT OF AGRICULTURE.

Is it the wish of the people that this Department shall push the tobacco industry?

Friend Root :—I inclose you a slip that is going the round of the papers, which no doubt you have seen, and I am certain will interest you as it does me.

WASHINGTON, Oct. 27. Secretary Wilson announced today that experts of the Agricultural Department will hunt all over the United States and its new possessions for conditions favorable to the cultivation of the filler tobacco, such as is now raised in Cuba, so that, if possible, all the filler tobacco used in this country eventually may be raised within the boundaries of the United States.

"The United States," he said, "is now paying \$8,000,000 for wrapper tobacco. We have succeeded in finding in this country the conditions under which all the wrapper tobacco we need can be raised here, and experts of the Department of Agriculture for the first time are seeking soils adaptable to the cultivation of the fine filler product. We have parts of Pennsylvania, Ohio, and Texas selected for the investigation of our experts, and land for similar purposes will be selected in all our new island possessions, with a view to ascertaining how and under what conditions the filler product can be built up here."

I think sometimes that, if the W. C. T. U. and other kindred temperance organizations would drop some parts of their work, and in its place work against tobacco, they would do far more real good.

The tobacco habit is gaining faster than the liquor habit, and I, I think, the cause of more suffering in the aggregate. Then it is the great stepping stone to intemperance. For our young boys tobacco is first, the saloon next. Only yesterday, on a ride into the country, we met three boys, schoolbooks in hand, one with a pipe and one with a cigarette in his mouth, and scarcely twelve years old, and this is common.

Everywhere we come into the tobacco atmosphere. No persn can avoid it for a single hour unless he stays in his own home. Invalids or delicately organized women are often made almost or absolutely sick by a nuisance they can not avoid, while it is very seldom that any one is annoyed by intoxicating drink or intoxicated persons.

Some may say the tobacco user does not come home and abuse his wife and family, even to blows. But think for a moment of a delicately organized woman, always in her own home, surrounded by and breathing a tobacco atmosphere, brought there and maintained by a devoted husband soaked through and through with tobacco, doomed to a slow and almost certain death, and scarcely any one laying it to the real cause.

Occasionally, by some mysterious act of Providence (?) the husband may happen to go first. Then, to the surprise of every one, the bereaved wife's health immediately commences to improve. This is no overdrawn or singular case, but is happening all around us—but the wife generally dies first.

Then the undermining of the health of our youth is, I think, far greater than all the damage done by liquor alone unaided by tobacco.

Did you ever think how even the women who think intemperance such a curse could almost alone, if really in earnest, stamp out both intoxicating drink and tobacco? Simply refuse to have any thing whatever to do with the user of either; but it must be absolute, always, and unrelenting. They will not do it, even as individuals. Are they really in earnest? Actions count; words, but little.

For the best way, if we could only find it, I am

Sincerely yours,
Conneaut, O., Nov. 2 D. CUMMINS.

No information is given as to what paper the clipping referred to, given in small type, came from. It is indeed a sad state of affairs to contemplate. The educators of our nation, teaching in all our schools and colleges the effects of tobacco on the human system, and at least to *some* extent warning our boys against the habit, and right while this is going on the Secretary of the Agricultural Department of Washington is using government money to push this industry, not only throughout the United States but even into our new possessions, the islands of the sea! The trouble *can* be met; and, through the grace of God, it *must* be met. We can not put the whole burden on the shoulders of our women, even if they are not as a rule tobacco-users. But every man who loves righteousness, temperance, and purity, and who hates iniquity, must enter his protest, and that right vigorously, and then the reform will come, and we have God's promise that we *shall* reap in due time if we faint not.

MAKING GOOD MEN AND WOMEN; THE CHEAPEST WAY TO DO IT.

The following gem from the *Promoter*, of Grand Junction, Col., for January, comes in nicely with the notice I gave in our last issue of Miss Remington's work among the children:

The costliest way of making good men and women is that which looks toward reforming them after they have started out on the wrong track. And it is so uncertain too. The time to start a tree growing straight and true is before it has begun to go wrong.

150 Kinds for 16c.

It is a fact that Salzer's vegetable and flower seeds are found in more gardens and on more farms than any other in America. There is reason for this. We own and operate over 500 acres for the production of our choice seeds. In order to induce you to try them we make the following unprecedented offer:

For 16 Cents Postpaid

- 20 kinds of rarest luscious radishes,
- 12 magnificent earliest melons,
- 13 so delicious tomatoes,
- 24 peerless lettuce varieties,
- 12 beautiful beet sorts,
- 62 gorgeously beautiful flower seeds.

In all 150 kinds positively furnishing bushels of charming flowers and lots and lots of choice vegetables. Together with our great catalogue tell you all about Peasants and Peasants and Bromus and Speltz, onion seed at 60c. a pound, etc., all only for 16c. in stamps. Write to day.

JOHN A. SALZER SEED CO.,
La Crosse, Wis.

Sections

\$1.50

January 1 we commence making extensive improvements in our factory and warehouse. The following regular No. 2 sections are on hand, and we desire to sell them before beginning the improvements, as they will be in the way. In order to sell them quickly, we make the low price of \$1.50 per 1000 in any quantity.

- 120M $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ inches.
- 28M $4\frac{1}{2} \times 4\frac{1}{2} \times 2$ inches.
- 31M $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ inches.
- 35M $4\frac{1}{2} \times 4\frac{1}{2} \times 7$ -to-the-foot.
- 21M $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ inches.
- 22M $4\frac{1}{2} \times 4\frac{1}{2} \times 7$ -to-the-foot.
- 43M $4\frac{1}{2} \times 4\frac{1}{2} \times 7$ -to-the-foot.
- 25M $3\frac{1}{2} \times 5 \times 1\frac{1}{2}$, no-beeway.
- 16M $4 \times 5 \times 1\frac{1}{2}$, no-beeway.
- 52M $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ no-beeway.

Page & Lyon M'f'g Co.,
New London, Wis.

BERMUDA

With cable communication and equable winter temperature of 70 degrees, is reached in 48 hours from New York by the elegant steamers of the Quebec Steamship Company, sailing every ten days up to January, and then every five days. The situation of these islands—south of the Gulf Stream—renders

FROST UNKNOWN,

and the porous coral formation prevents malaria. The Quebec Steamship Company also despatches highest class passenger steamers every ten days for ST. THOMAS, SANTA CRUZ, ST. KITTS, ANTIGUA, GUADALOUPE, DOMINICA, MARTINIQUE, ST. LUCIA, BARBADOS, DEMERARA, and the principal WEST INDIA ISLANDS, affording a charming tropical trip at a cost of about \$4 a day. For descriptive pamphlets, dates of sailing and passages, apply to

A. E. OUTERBRIDGE & CO., Agents.

39 Broadway, New York.

ARTHUR AHERN, Sec., Quebec, Canada.

Revised Price List of Garden Seeds for Jan. 15, 1902.

PLEASE NOTICE that any or all seeds mentioned below are sold in five-cent packages, postpaid, by mail. For ten papers ordered at one time, 40 cents; 100 papers, \$3.50. Of course, scarce and high priced seed will necessitate making a very small amount of seed in a package; but by far the greater part of them contain a full half ounce of good fresh seeds. By comparing these packages with those you get of any of the seedsmen you will notice the liberal amounts we furnish for only 5 cts. It is true, we do not give presents or cash prizes; but we believe the most intelligent people of the present day would prefer to have their money's worth of what they ordered rather than compete for a prize. The five-cent packages are sent postpaid; but the price of all other seeds does not include postage; therefore, when you order seed by the ounce or pound, allow postage thus: 9 cts. per lb.; 5 cts. per $\frac{1}{2}$ lb., or 1 ct. per oz. Peas and beans by the pint and quart must also have 8 cts. per pint or 15 cts. per quart; for corn, add 12 cts. per quart for postage. Postage to Canada is double the above rates. One-fourth ounce, pound, or peck will be sold at ounce, pound, or peck rates unless otherwise specified.

ASPARAGUS.

Asparagus, Palmetto. Oz. 5c; lb. 40c.

BUSH BEANS.

Burpee's Bush Lima. Pt. 15c; qt. 30c; $\frac{1}{2}$ pk. \$1.00; bushel, \$3.50.
Henderson's Bush Lima. Pt. 8c; qt. 15c; pk. \$1.00; bushel, \$3.50.

Wood's Improved Bush Lima. Pt. 20c; qt. 35c; pk. \$2.00. An improvement on Henderson's, and larger.
Davis Wax Bean. Pt., 8c; qt., 15c; 4 qts., 55c; pk. \$1.00; bushel, \$3.75.

Dwarf German Wax, black seeded. $\frac{1}{2}$ pt. 8c; pt. 12c; qt. 20c. Perhaps the best wax bean, and very early.
Prize-winner Extra Early Shell Bean. $\frac{1}{2}$ pt. 8c; pt. 12c; qt. 20c; $\frac{1}{2}$ pk. 65c; peck \$1.25.

This is not only the earliest shell bean we have ever come across, but it is a tremendous yielder, and the best quality of any white bean we know of. It is so exceedingly early that in the season of 1900 we grew two crops on the same ground and the second crop was from beans that ripened from the first crop.

White Kidney, Large. Pt. 8c; qt. 15c; pk. \$1.00; bu., \$3.50.

Red Kidney Beans. Same prices as white.
York State Marrow. The standard field bean. Qt. 10c; pk. 75c; bushel, \$2.75.

Banner Field Beans. Qt. 10c; pk. 70c; bushel, \$2.75.

POLE BEANS.

Extra-Early Lima Beans. $\frac{1}{2}$ pt. 8c; qt. 25c; pk. \$1.75.
King of the Garden Lima. $\frac{1}{2}$ pt. 8c; qt. 25c; pk. \$1.75.

All of our beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 8c per pt. or 15c per qt. for postage.

BEEETS.

Eclipse. Oz. 5c; 1b. 30c; 5 lbs. \$1.25.
Long Red Mangel. Oz. 5c; 1b. 20c; 5 lbs. 90c; 10 lbs. \$1.60; 20 lbs. or more, 15c per lb.
Golden Tankard Mangel. Oz. 5c; 1b. 20c; 5 lbs. 90c; 10 lbs. \$1.60; 20 lbs. or over, 15c per lb.

STANDARD SUGAR BEETS.

Lane's Imperial Sugar. Oz. 5c; 1b. 20c; 5 lbs. 75c; 10 lbs. or more, 12c per lb.

French White Sugar Red-top. Same price as Lane.

CABBAGE.

Select, Very Early Jersey Wakefield. Oz. 20c; 1b. \$2.50.

Henderson's Early Summer. Oz. 10c; 1b. \$1.25.

Fottler's Brunswick. Oz. 10c; 1b. \$1.25.

Burpee's Sure-head. Oz. 10c; 1b. \$1.25.

Excelsior Flat Dutch. Oz. 10c; 1b. \$1.25.

Perfection Drumhead Savoy. Oz. 10c; 1b. \$1.25.

Large Red Drumhead. Oz. 10c; 1b. \$1.25.

CARROTS.

Early French Forcing. Oz. 5c; 1b. 40c.
Orange Danvers, Half Long. Oz. 5c; 1b. 35c; 5 lbs. \$1.50.

CAULIFLOWER.

March's Improved Early Snowball. (Mattituck Export) $\frac{1}{4}$ oz. 3c; $\frac{1}{2}$ oz. 5c; oz. \$1.75.

CELERY.

Henderson's White Plume. Oz. 10c; 1b. \$1.00.

Golden Self-blanching Celery. Oz. 15c; 1b. \$1.75.

New Rose. Oz. 10c; 1b. 75c.

Giant Paschal. Oz. 10c; 1b. 75c.

Dwarf Golden Heart. Oz. 10c; 1b. \$1.00.

CORN (for table use).

Corn we sell at 5c per half-pint package; but at this price purchasers must pay postage, which is 3c for each half-pint. If wanted in larger quantities the price (where no price is given) will be, pt. 7c; qt. 10c; pk. 65c; bu. \$2.25.

Kendel's Early Giant Sweet Corn.

Ford's Early Sweet.

Late Mammoth Sugar.

Country Gentleman, or Improved Shoepeg.

Rice Pop Corn. Extra fine.

Sweet Corn for fodder. Pk. 40c; bu. \$1.50.

CORN SALAD.

Oz. 5c; 1b. 40c.

CRESS.

Extra Curled, or Pepper Grass. Oz. 5c; 1b. 40c.

Water Cress, true. Oz. 25c; 1b. \$2.50.

CUCUMBER.

Early Frame. Oz. 5c; 1b. 35c.

Improved Early White Spine, or Arlington. Oz. 5c; 1b. 35c.

Green Prolific, or Boston Pickle. Oz. 5c; 1b. 35c.

LETTUCE.

Grand Rapids Lettuce. Oz. 5c; 1b. 50c; 5 lbs. \$2.00.

Big Boston (White-seeded Tennis-ball). Oz. 5c; 1b. 50c.

Henderson's New York. Oz. 5c; 1b. 50c.

MELONS, MUSK.

Casaba, or Persian Muskmelon. Oz. 5c; 1b. 35c.

Banana. Oz. 5c; 1b. 35c.

Extra Early Citron. Oz. 5c; 1b. 35c.

Emerald Gem. Oz. 5c; 1b. 35c.

Miller's Cream, or Osage. Oz. 5c; 1b. 35c.

Paul Rose Muskmelon. Oz. 8c; 1 lb., 60c. New; fine.

Rocky Ford Canteloupe Muskmelon. The same that so many people enjoyed at the Omaha exposition. oz. 5c; 1 lb. 35c.

MELONS, WATER.

Phinney's Early. Oz. 5c; 1b. 30c.

Landreth's Boss. Oz. 5c; 1b. 30c.

Sweetheart. Oz. 5c; 1b. 30c.

ONIONS.

A leaflet on "Growing Onions to Bunch up" will be mailed on application.

Yellow Globe Danvers. Oz. 8c; 1b. 75c; 5 lbs. \$3.25.

Large Red Wethersfield. Oz. 8c; 1b. 75c; 5 lbs. \$3.25.

Prizetaker. Oz. 15c; 1b. \$1.25.

White Victoria. Oz. 20c; 1b. \$2.50.

American (Extra Early) Pearl. Oz. 25c; $\frac{1}{2}$ lb. \$1.75; 1b. \$3.25.

Extra Early Red. Oz. 8c; $\frac{1}{4}$ lb. 30c; 1b. \$1.00.

Bermuda (true Teneriffe). Oz. 25c; 1b. \$2.00.

Giant Gibraltar Onion. Oz. 20c; 1b. \$2.50; new and fine; still larger than Prizetaker.

ONION-SETS.

By mail, 10 cents per quart extra.

Winter or Egyptian. Qt. 10c; pk. 50c; bu. \$1.50.

Top or Acorn. Qt. 20c; pk. \$1.00; bu. \$3.50.

PARSNIP.

Improved Guernsey. Oz. 5c; 1b. 25c; 10 lbs. \$2.00.

PARSLEY.

Fine Curled or Double. Oz. 5c; 1b. 35c.

PEAS.

Peas of all kinds are very scarce. If you think our prices high, look over your seed catalogs and see what some of the rest are charging for them.

Alaska. $\frac{1}{2}$ pt. 7c; qt. 20c; pk. \$1.35; bu. \$5.00.

American Wonder. Qt. 25c; pk. \$1.60; bu. \$6.00.

Premium Gem. $\frac{1}{2}$ pt. 8c; pk. \$1.35; bu. \$5.00.

Stratagem. $\frac{1}{2}$ pt. 8c; qt. 20c; pk. \$1.25; bu. \$4.50.

Champion of England. Pt. 10c; qt. 20c; pk. \$1.25; bu. \$4.50.

Canadian Field. Pk. 40c; bu. \$1.25.

Peas by mail will be at same rate as beans for postage.

PEPPERS.

Sweet Spanish. $\frac{1}{4}$ oz. 8c; oz. 20c.

Bullnose. $\frac{1}{4}$ oz. 5c; oz. 12c.

Cayenne. $\frac{1}{4}$ oz. 8c; oz. 15c.

PUMPKIN

Early Sugar. Oz. 5c; 1b. 35c. Specially for pies.

Field Pumpkin. Oz. 5c; 1b. 15c.

Myatt's Victoria. RHUBARB.
Oz. 10c; lb. \$1.00.

Early Scarlet Globe. RADISHES.
Oz. 5c; lb. 40c.
Wood's Early Frame. Oz. 5c; lb. 40c.
Beckert's Chartier. Oz. 5c; lb. 40c.
Chinese Rose Winter. Oz. 5c; lb. 40c

SALSIFY, OR OYSTER PLANT.
New Mammoth. Oz. 10c; lb. \$1.00.

SPINACH.
Bloodsdales Extra Crisp. Oz. 5c; lb. 20c; 5 lbs. 75c.

SQUASH.
Giant Summer Crookneck. Oz. 5c; lb. 40c.
Hubbard. Oz. 5c; lb. 50c; 5 lbs. \$2.25; 10 lbs. \$4.00

TOMATO.
Golden Queen. Pkt. 5c; oz. 15c; lb. \$2.00.
Ignatum Tomato. ½ oz. 8c; oz. 15c; lb. \$1.50.
Livingston's Beauty. Oz. 12c; lb. \$1.75.
Earliest-in-the-world Tomato. ½ oz. 10c; ¼ oz. 15c;
½ oz. 28c; oz. 50c.

Fordhook First. Oz. 20c; lb. \$2.75.
Dwarf Champion. Oz. 10c; lb. \$1.25.
Buckeye State. Oz. 15c; lb. \$1.75.
Livingston's New Stone Tomato. Oz. 10c; lb. \$1.25.
Trophy Tomato. Oz. 10c; lb. \$1.00
Pear shaped Tomatoes. Oz. 20c; lb. \$2.50

TURNIP.
Yellow Aberdeen. Oz. 5c; lb. 25c.
White Egg. Oz. 5c; lb. 30c.
Bradstone. Oz. 5c; lb. 30c.
Purple-top White-globe. Oz. 5c; lb. 30c; 5 lbs. \$1.25

SEED POTATOES FOR SPRING OF 1902

Prices on seed potatoes for planting in 1902 will be as follows: ½ peck, 25 cts.; peck, 40 cts.; ½ bushel, 75 cts.; bushel, \$1.40; barrel, \$4.00. Small seconds, half the above prices. I have been watching quotations for several months, and no reliable seedsmen has made any better prices. We will ship them (when they go south (where wanted) before April 1, 1902), at the above figures; or we will keep them safely for you till next spring; or we will specially arrange potato-cellar. We can furnish, at the above prices, White Bliss Triumph, Early Ohio, Bovee, Sir Walter Raleigh, New Russet, and Craig. As our supply of manys is limited, you had better order at once if you want them. Seed potatoes, especially the earlies and extra earlies, are likely to be away up before another spring. Our seconds will probably all be gone very soon at the above low figures. These seconds are not all small potatoes. In sorting we have put badly shaped and scabby potatoes into the seconds. Some of these latter are of very good size, and will be cheaper for table use at the price (\$2.00 per barrel), than any thing else you can probably get in the market. Of course, it is a little more work to prepare them for the table; and a part of them will be rather small for table use; but at the above price you are to take them as they come—all potatoes not strictly fit for A No. 1.*

OTHER POTATOES IN SMALL QUANTITIES.

We can furnish the following kinds in small quantities, say not to exceed a peck or half a bushel: Early Trumbull, New Queen, Lee's Favorite, Freeman, State of Maine, Maule's Commercial, Carman No. 3, White Mammoth, Early Michigan.

Any of the above potatoes will be furnished in very small quantities at 5 cts. per lb., or by mail at 15 cents per lb., or 3 lbs. for 40 cts. Potatoes for premiums can be sent by mail, but 10 cts. per lb. extra for postage and packing will be required.

POTATOES AND GARDEN SEEDS TO BE GIVEN AWAY

Everybody who sends \$1.00 for GLEANINGS (asking for no other premium) may have 25 cents' worth of potatoes, seeds, etc., providing he mentions it at the time he sends in the money; and every subscriber who sends us \$1.00 for a new subscriber so that GLEANINGS may go into some neighborhood or family where it has not been before, may have 50 cents' worth of potatoes, seeds, etc.; but you must pay all postage, express, or freight on your premiums. We can give away potatoes, etc., but we can not give away postage stamps.

GRAND RAPIDS LETTUCE SEED—TWO BUSHEL BAGFUL.

Some of our friends doubtless remember when I paid \$50 for a single half-pound of this lettuce seed. Well, I do not know that I ever invested \$50 in my life

* Mr. E. T. Flanagan, of Belleville, Ill., had two barrels of these seconds, and was so well pleased with what we put in seconds he wrote: "If these are what you call SECONDS, I wonder what the firsts are like."

where it did more good to the world in general than when I scattered that half-pound of seed in little pinches all over the face of the earth. During all these years that have passed, the industry of growing Grand Rapids lettuce under glass has been steadily increasing; and I do not know of any venture in this direction that has ever proved to be a failure. Just now we have a two-bushel bag of seed grown expressly for us in California. We have the plants now growing in the greenhouse, and it is certainly the finest strain of seed I ever got hold of—that is, by the quantity. If you wish to get lettuce out so as to take in the big spring market, now is the time to sow the seed. You can start the plants in the house, in shallow boxes, if you can not do any better. Put them in cold frames well protected; or, better still, put in some stable manure, and get a little bottom heat if you wish to push them along. Hot beds and cold-frames are especially adapted to this lettuce; and if you have not glass, a great deal can be done with cotton cloth, as described in the tomato book. Of course, a little greenhouse (or a big one) is the nicest way to work it; and just now I do not know of any prettier or more interesting business in the world than growing Grand Rapids lettuce in a greenhouse. With very rich soil the seed will come up in four days; and in four days more it may be transplanted so as to give the little plants more room; that is, you can do this where every thing is just right.

The price of this extra nice seed is, 1 oz., 5 cts.; 1 lb., 50 cts.; 5 lbs., \$2. By mail, 10 cents per lb. extra. We shall be glad to send you the seed by return mail.

PRICES ON CLOVER SEED AT THIS DATE.

Although the market is not very well settled as yet for 1902, as nearly as we can make out the prices will be about as follows. But let it be understood there are liable to be fluctuations, and we can not be responsible unless for immediate orders.

Alsike clover, bu., \$10; ½ bu., \$5.25; peck, \$2.75; 1 lb., 20 cts., or by mail 30 cts.

Medium clover, bu., \$7.00; ½ bu., \$3.75; peck, \$2.00; 1 lb., 15 cts., or 28 cts. by mail.

White Dutch clover is the same as alsike.

Peavine, or Mammoth Red clover, same as medium. Alfalfa, bu., \$6.00; ½ bu., \$3.25; peck, \$1.75; 1 lb., 15 cts., or 25 cts. by mail.

Crimson, or scarlet clover, bu., \$4.50; ½ bu., \$2.40; peck, \$1.25; 1 lb., 10 cts., or by mail 20 cts.; 3 lbs. by mail, 50 cts.

Sweet clover, 100 lbs., 10 cts. per lb.; 10 lbs. at 12 cts.; 1 lb., 15 cts.; by mail, 25 cts. per lb.

MARCH'S IMPROVED MATTITUCK ERFURT CAULIFLOWER SEED.

MR. ROOT:—Last year I got a small quantity of cauliflower seed from you that did extra well for me. I have forgotten its name, but you said you had but a limited amount of the seed. If you know what it was from this, and have any more of the same strain this season, please send prices. Warrensburg, Mo., Jan. 7. M. F. PARKER.

Friend P., the seed you had was as above. We have now a fine stock of exactly the same thing. ½ oz., 30 cts.; ¼ oz., 50 cts.; 1 oz., \$1.75. There has been such a tremendous demand for this new improved strain of Early Snowball (for that is what it is) the price has advanced somewhat, as above. Everybody seems to give the same verdict you have in regard to it.

The A. I. Root Co., Medina, Ohio.

WANTED. Comb honey in any quantity. Please advise what you have to offer. EVANS & TURNER, Town St., Cor. 4th, Columbus, Ohio.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHEIM, 1318-1324 Union Avenue, Kansas City, Mo.

FOR SALE—Fancy and No. 1 comb honey; about 2000 lbs. or more. WM. MORRIS, Las Animas, Col.

FOR SALE. Extracted honey, from alfalfa, at 7c per pound. Send for sample. D. S. JENKINS, Las Animas, Col.

FOR SALE—A quantity lot of well-ripened clover honey in 60-lb. cans. B. WALKER, Clyde, Ill.

FOR SALE.—Clover and sweet-clover extracted honey at 7c, in kegs and cans. DR. C. L. PARKER, Sta. A, R. F. D., Syracuse, N. Y.

FOR SALE.—1000 lbs No 1 and fancy comb honey. H. L. LEONARD, Brandon, Vt.

SALZER'S SEEDS

Beardless Barley
Is probably the best yielding in 1901 for M. Wells, Orleans Co., New York. 100 bushels per acre. Does well everywhere. **That pays.**

20th Century Oats.

The oat marvel, producing from 200 to 300 bu. per acre. Salzer's Oats are warranted to produce great yields. The U. S. & A. Dept. calls them the very best! **That pays.**

Three Eared Corn.

204 & 250 bu. per acre, is extremely profitable at present prices of corn. Salzer's seeds produce everywhere.

Marvel Wheat

Yields in 30 States last year over 40 bu. per acre. We also have the celebrated **Maccaroni Wheat**, which yielded on our farms 63 bu. per acre. **That pays.**

Speltz.

Greatest cereal food on earth—80 bu. grain and 4 tons macintosh hay per acre. **That pays.**

Victoria Rape

makes it possible to grow sheep and cattle at a cost of but 1c lb. Marvelously prolific, does well everywhere. **That pays.**

Bromus Inermis.

Most wonderful grass of the century. Produces tons of hay and lots and lots of pasture for horses per acre. Grows where ever soil is found. Salzer's seed is warranted. **That pays.**

\$10.00 for 10c.

We wish you to try our great farm seeds, hence offer to send 10 farm seed samples containing 1 lb. each of Healed Kale, Potatoes, Rape, Alfalfa, Speltz, etc. (fully worth \$10.00) (get a start) together with our great catalog, for 10c postage.

John A Salzer Seed Co. LA CROSSE, WIS.

GOOD SEEDS CHEAP

Best in the World.

None so low in price. Largest illustrated seed catalogue ever printed, FREE. Engraving of every variety. Price only 1 cent per pkg. and up. A lot of extra packages, rare sorts, presented FREE with every order. Send name and address by card or letter.

R. H. SHUMWAY, Rockford, Illinois.



IT'S NO DREAM

to see fine apples at a low price. It is the actual result of careful spraying of trees with the wonderful **HARDIE SPRAY PUMPS**. They are suited to every condition and all fruits. Strong, durable and last indefinitely. Endorsed by best fruit growers. Send for free Catalog and Spray formulas. **THE HARDIE SPRAY PUMP MFG. CO.** 63 Larned St., Detroit, Mich., U.S.A.

FERRY'S
Ferry's Seeds make good crops, good crops make more customers—so each year the crops and customers have grown greater. That's the secret of the Ferry fame. More Ferry's Seeds sold and sown than any other kind. Sold by all dealers. 1902 Seed Annual FREE.
D. M. Ferry & Co.
Detroit, Mich.

This Marvelous Extra Early Potato originated by **HARRY N. HAMMOND SEED CO. Ltd** Box 69, BAY CITY, MICH.
Largest growers of seed potatoes in America. 30 best varieties. Northern Grown always best. Blight proof, enormous yielders, highest quality. Lowest price for lb., bbl., or carload. Elegant 100-page Bargain Seed Catalogue FREE. Write for it today.

FENCE! STRONGEST MADE. Built strong, Chickentight. Sold to the Farmer at Wholesale Prices. Full, warranted, Catalog Free. **COLLED SPRING FENCE CO.,** Box 101 Winchester, Indiana, U. S. A.

POULTRY PAPER FREE.
Your name and address on postal card mailed to **Renable Poultry Journal, Quincy, Illinois**, will bring you free sample with elegant full-page color plate frontispiece showing in natural colors a pair of standard fowls, reproduced from oil painting by Frank L. Sewell. World's greatest poultry artist. Sixty-eight to 160 pages monthly, 50 cents a year. **SEND TO-DAY FOR FREE SAMPLE.**

MAKE POULTRY PAY
by feeding green cut bone. The **Humphrey Green Bone and Vegetable Cutter** is guaranteed to cut more bone in less time with less labor than any other cutter made. Send for free book containing blanks for one year's egg record.
Humphrey & Sons, Box 51, Joliet, Ill.

FOR THE WIFE AND CHILDREN.
Get an incubator that they can run; one that will do good work from the start and last for years. The **Sure Hatch** is made of California red wood, with 12oz. cold rolled copper tank, Hydro Safety Lamp, Climax Safety boiler and Corrugated Wafer regulator. Send for our big free catalog. It gives actual photographs of hundreds who are making money with the **Sure Hatch Incubator**. Our Common Sense Brooder is the best. Send now.
Sure Hatch Incubator Co., Clay Center, Neb., or Columbus, O.



THE CYPHERS INCUBATOR

IS THE STANDARD HATCHER OF THE WORLD.

Used with uniform success on twenty-six Government Experiment Stations in the U. S., Canada, Australia and New Zealand; also by America's leading poultrymen and many thousands of persons in every walk of life. Guaranteed to give satisfaction or price refunded. The original and only genuine non-moisture incubator, fully covered by patent. Winner of **GOLD MEDAL AND HIGHEST AWARD AT THE PAN-AMERICAN, Oct. 1901.** Illustrated, descriptive, 32 page circular FREE. Complete new catalogue for 1902 containing 120 pages, 2x11 inches in size, for 10c in stamps to pay postage. Illustrates over 100 of America's largest and most successful poultry plants. Ask for Book No. 74 and address nearest office.

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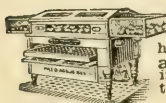
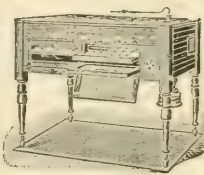
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printed in five different languages to tell the people of the many points of superiority of our **SUCCESSFUL Incubators & Brooders.**

One 200 egg machine will hatch more chicks than 20 steady old hens each time it is filled with eggs. They will be stronger, more healthy chicks, too. These machines will do for you just what they have done for thousands of others. Write for 108 page Catalog enclosing 6c to pay postage. We ship machines and handle correspondence for the East from our new house in Buffalo. Write nearest office.

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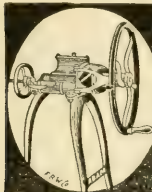
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has enabled us after 16 years to make perfect **The Reliable Incubators and Brooders.** You ought to have our 20th Century Poultry Book in the house. It will cost you but 10 cents and will make you a master in the poultry business.

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Why Not Buy the Best?

It costs no more than inferior styles. We claim that **Adam's Green Bone Cutter** is the best because it is the only Ball Bearing machine on the market. It works on the shear principle, turns easier, cuts faster and cleaner, and prepares the bone in better shape than any other. Write at once.

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GET FERTILE EGGS AND LOTS OF THEM

by feeding cut raw bone. It makes vigorous chicks, too. The easiest running most rapid cutting machine for preparing it, is the **MANN'S BONE CUTTER**. 1902 New design, open hopper, enlarged table, Model new device to control feed. You can set it to suit any strength. Never clogs. Sent on **TEN DAYS' FREE TRIAL.** No money asked for until you prove our guarantee on your own premises, that our new model will cut any kind of bone with adhering meat and gristle, faster and easier and in better shape than any other type of bone cutter. If you don't like it, send it back at our exp. ins.

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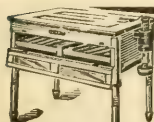
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Start Right.
Success depends upon it.
With the "incomparable"
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you will save 75 per cent of the usual loss from insects and disease. We save money for you. Makes Emulsion while pumping. Kills insects and lice on chickens and animals. Made only by
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Twelve varieties of sprayers. Write for our booklet treating of all kinds of diseases and insects. Sent free. Write us or our Western Agents.
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That's what people say about our box, and it's built that way. No imitation Cathedral. No Jack-in-the-box surprises. No rat-hole exploration to get your mail. Just the simplest style of weather-proof building-shed roof, wide projecting cornice and thick heavy walls. Isn't that the kind of structure to rely on? Send for details.

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Barred Plymouth Rocks Exclusively. Bred for business and beauty by an expert poultryman. My birds are a combination of the best strains in America. Eggs and stock in any quantity.

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Queens by Mail To-Day, Safely!

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90 DAYS TRIAL

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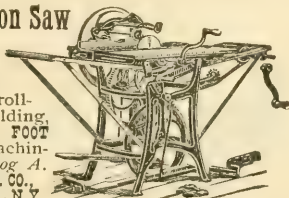
We are personally acquainted with the proprietors of The Ohio Farmer, and consider them thoroughly reliable. See their ad also on page 79.

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I guarantee every plant, vine, etc., which I sell to be strong-rooted, Healthy, Hardy, Dormant Plants. Raspberry, Blackberry, Gooseberry, Currant, Strawberry, etc. All fresh dug as shipped—no heeled-in stock. New 1902 FREE Catalog contains all standard and many new varieties.

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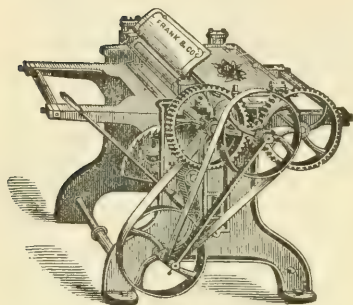
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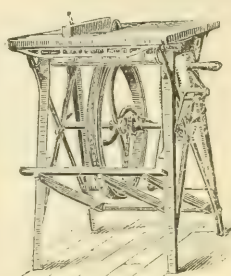
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Machines on Trial.
Send for illustrated catalog and prices. Address
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40 acres of best fruit and vegetable hammock land on Manatee River, Fla. This land is same class and near the Ellenton hammock spoken of in GLEANINGS, page 855, Nov 1, 1900, "Profitable Yield of Grape Fruit." This section is noted for *extra success* with citrons, fruits, and vegetables. Manatee River is the most attractive body of tide water in Florida. I have held this land at \$100 per acre, but owing to old age and broken health, will take \$1400 for the entire tract; 10 acres under fence (wire).

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Queens! Untested, \$1.00; tested, \$1.25 and upward. See former ads. and circular. **J. B. Case, Port Orange, Florida.**

FOR SALE.—Will sell cheap, one 10 h. p. engine with upright boiler all complete. **J. W. BITTENBENDER, Knoxville, Iowa.**

FANCY EXTRACTED HONEY.—An extra-fine lot of clover honey that I had reserved for bottling, but owing to change of plans will sell in bulk. From combs entirely capped and fully ripened, thick and rich. Now candied perfectly hard and dry. Cans hold 74 lbs. net. Per can, \$5.50. Fancy comb honey, 22 lbs. in case, per case, \$3.50.

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American Poultry Advocate.....	25	65	15
Breeders' Gazette, Chicago.....	2 00	1 60	1 10

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Bees Pay in Colorado.

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Monthly; 50c per year. Sample copy free; 3 months on trial, 10c. Address

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A CORRECTION.

An unfortunate error occurred in our catalog by which it appears that GLEANINGS can be had for 50 cents a year by any one who buys a single article from our catalog, no matter how insignificant in value. It should read that the 50-cent rate can be secured only when parties buy \$10 worth or more of supplies at regular prices. The correction was made while the forms were on the press; but as some catalogs have gone out with the wrong reading, we think it best to mention it here.

MAPLE SUGAR.

We have a very choice lot of maple sugar which, when being made up from syrup, had about 20 per cent of granulated sugar added to make it grain properly. Ordinarily this is not necessary; but this was an unusual lot. We shall be pleased to mail sample to any one interested. Price 10c per lb. In barrel lots of about 30 lbs., 9c. Maple products, both syrup and sugar, are scarcely to be found in the market till the new crop is ready this coming season.

TIN CANS FOR SYRUP AND HONEY.

We have made favorable arrangements for the coming season on tin cans of $\frac{1}{2}$, $\frac{1}{2}$, 1, and 5 gallon capacity, and have just received one car from the factory, and expect another one later. Unless otherwise specified, our cans this year will have $1\frac{1}{2}$ -inch screws without the inner seal. We can supply them with $1\frac{1}{4}$ inch screw a little cheaper if that size is large enough. We shall be pleased to hear from those in need of cans. We will not carry sap-buckets in stock, but we can furnish them direct from the factory at favorable prices. If interested let us hear from you.

HONEY MARKET.

The extracted-honey market seems to be a little firmer than it was six weeks to two months ago. There has been no rain in Southern California since the middle of November, and the outlook for a crop there this season is very poor unless rain comes soon. We have sent out various inquiries for white-sage extracted, but do not find it. We could use a car at the right price. Other honey, both comb and extracted, is selling fairly well. We could take care of more orders for comb honey, as we have quite a large stock. Inquiries solicited.

GLASS HONEY-PACKAGES.

We recently laid in a stock of over 50 gross of Muth square jars with corks, and are prepared to quote special prices on large lots, and to ship promptly.

We have on the way here a carload of Mason fruit-jars and No. 25 and 143 honey-jars. Our orders for these No. 25 jars have increased at such a rate that we have several times the past season disappointed several good customers by delay in shipping their orders promptly. The factory has been slow in filling our orders, and the increased demand has used up stock sooner than we calculated. We hope from now on to keep pace with orders. The No. 25 holds an even pound of honey, and No. 143 about 14 oz. See our catalog for prices.

We have in stock a limited quantity of glass tumblers, pails, and jars, such as we have listed in our catalog for a number of years, and which are omitted from the last edition. We offer these, to close out, at the following prices: No. 788, $\frac{1}{2}$ -pint tin-top jellies, holding 10 oz. of honey, in barrels of 21 dozen at \$1.50 per bbl.

No. 789, $\frac{1}{2}$ -qt., holding 1 lb. honey, 16 $\frac{1}{2}$ dozen to bbl., at \$5.00.

1 bbl. of 16 $\frac{1}{2}$ dozen of each size, nested, at \$8.00.

No. 776 glass pails holding 14 oz. honey, per bbl. of 16 $\frac{1}{2}$ dozen, \$6.00.

No. 777 glass pails holding 17 oz. honey, per bbl. of 12 $\frac{1}{2}$ dozen, \$5.40.

No. 778 glass pails holding 24 oz. honey, per bbl. of 8 $\frac{1}{2}$ dozen, \$5.40.

Also a few jam-jars and oaken-bucket jellies, which we will price to those interested.

Special Notices by A. I. Root.

GOOD AND USEFUL BOOKS AS PREMIUMS TO SUBSCRIBERS.

Any one sending us \$1.00 for GLEANINGS, and asking for no other premium, may have books from the book list in last issue to the amount of 25 cents. And any subscriber who will send us \$1.00 for a new subscriber—that is, where he by so doing starts GLEANINGS going into a new family or a new locality—the subscriber who sends us this new name, without asking for any other premium, may have 50 cents' worth of books from the book list. These offers refer to the books themselves, not to the postage. Send the proper postage for every book you order as a premium.

GROWING TOBACCO; GIVING THE INDUSTRY COUNTERNANCE AND ASSISTANCE.

The first seed catalog for 1902 placed on my table is from our old friend A. T. Cook, Hyde Park, N. Y. It is gotten up in excellent style as usual. But what pleases me in particular about it is a paragraph right in the middle of the book, saying: "Don't ask me for tobacco seed. I do not think it right to raise the vile stuff, sell, or use it." Now, there may be other seedsmen in the United States who have the courage to come out this way before the world—especially when we are told that three-fourths of all the men use tobacco. Very likely friend Cook loses some trade by coming out thus boldly for principle. If so, let us who love righteousness and hate iniquity stand by him and give him encouragement. If there are other seedsmen who have the courage to come out boldly and fearlessly in a like manner, I should be glad to publish their names. Friend C. sells seeds in packets only, never in bulk.

FERRETS FOR BANISHING RATS.

For years we have been troubled more or less with rats and mice. They got into the potato cellars, into the seed-room—in fact, into the basements, more or less of all our buildings. They were baited a good deal by the workmen throwing away fragments of their dinner when they had more than they needed. I tried to stop this, but had to give it up. Well for years past we have kept the vermin down pretty well with a "gang" of cats; but a good many times our people voted the remedy worse than the disease. In spite of every thing I could do the cats were clubbed out of the way, and sometimes shot, before I knew what was going on. Of course, some cats were "brought up" properly; but occasionally we had tramp cats that had no bringing up, and, as it often happens, the innocent ones had to suffer in place of the guilty. Ernest has for a long time urged getting a ferret. Ferrets cost money, and I thought it would be an added responsibility. A few days ago, however, I found a relative who owned a ferret. I telephoned him to come and banish our rats. He feared, however, he would lose his ferret in a place so large as ours; but when I volunteered to pay him for it (price \$3.50) if lost, he went ahead. We first took the potato-cellar. As soon as he was out of the bag he put down under the floors into every rat hole he could find; in fact, he went everywhere a rat could go. Every little while he would come out, or, rather, look out, and take a peep at his owner to see he was not entirely among strangers, and then back he went. We did not see any rats in any of the factory buildings; but in the course of two hours his owner said they were gone, and there would be no more around here for a week or two, for they will always leave as long as the scent of the ferret remains. The next day our teamster informed me that, for some reason unknown, the barn and stables were full of rats. He said he found a good bushel of dirt carried out into one of the stables during one night; and then I remembered I had forgotten all about the barn, for I supposed half a dozen cats would take care of that. We sent for the ferret again, and he went into a rat-hole where they had been digging, "quicker than a shot." I told the boys they had better have some clubs, but they were in too much of a hurry; in about a minute after the ferret went into one hole a rat came out of another. There was lots of stamping and yelling, but the rat got away. Another rat went through the same program, and a third one poked his head out and concluded, evidently, it would be jumping out of the frying-pan into the fire, so he went back. Pretty soon out came the ferret. He was so excited that his master could hardly restrain him; and in just no time he explored every rat-hole and every nook and cranny in the barn. We after-

ward found where the rats had made tracks off through the snow for a "healthier" local ty.

Now, this experience has been worth a good deal to me. If we can have a ferret once in two weeks or once in a month, it will certainly be much preferable to cats. The owner of the ferret says he took one into a barn where there were so many rats they came very near killing the ferret; but after he was rescued, the rats went off in a body, and none have been noticed in or around that barn for more than a year although the ferret made only one visit. One of our advertisers, Mr. N. A. Knapp, of Rochester, O., publishes a book, "The A B C of Ferret Culture," which I have been reading with considerable interest. We can mail it for 12 cents.

CONVENTION NOTICES.

The Wisconsin State Bee-keepers' Association will hold its annual convention in the State Capitol at Madison, Feb. 5 and 6, 1902. The convention promises to be largely attended. Excursion rates of 1½ fare, good for all of the first week in February. All are invited to attend. ADA L. PICKARD, Secretary.
N. E. FRANCE, President.

The annual meeting of the New York State Association of Bee-keepers' Societies will be held in the parlors of the Kirkwood Hotel, Geneva, N. Y., on Wednesday, Feb. 5, 1902, commencing at 10 A. M. All interested in bee culture are cordially invited to be present. Subjects of importance are to be brought before this meeting, and it is desired to have a large representation of bee-keepers in attendance.

W. F. MARKS, Pres., Chapinville, N. Y.
C. B. HOWARD, Sec'y, Romulus, N. Y.

Wants and Exchange.

WANTED—To exchange for cash or wax, one No. 25 Cowan extractor, 100 R-11 honey-boards, and 1901 make of Daisy foundation-fasteners. *Bargains.* Write to M. H. HUNT & SON, Bell Branch, Mich.

WANTED—To sell at once, 40 colonies of bees. Got them on bill of sale. Know nothing about bees. A. G. COOK, Pratt's Hollow, N. Y.

WANTED—To sell or exchange 240-acre farm situated in Lonoke Co., Ark., 3 miles from county-seat. Good frame 5-room house; good well at house, with windmill; good young orchard. 60 acres under cultivation, 100 acres grass, 80 acres choice timber; all fenced except timber. For further particulars address A. O. YOUNG, Montrose, Mo.

WANTED—Fifty to 100 colonies bees, March or April; South preferred, near Brunswick or New Orleans. I. J. STRINGHAM, 105 Park Pl., New York.

WANTED—To exchange Dadant uncapping-cans, Root's No. 5 extractor, and other supplies, for honey or wax. O. H. HYATT, Shenandoah, Iowa.

WANTED—To exchange 50 T supers, mostly unused; 25 section-holder supers, unused; 25 second-hand supers, 25 eight-frame hive-bodies, many new; 100-egg incubator and brooder, 10-in. fdn. mill, Novice extractor, Porter bee-escapes, all-zinc honey-boards, queen and drone traps, zinc perforator for making queen-excluding zinc, greenhouse or hotbed sash, made up or in flat; a large quantity of 8x10 glass, also odd sizes. Send for prices. Wanted—queens, honey, wax, St. Bernard dog, or offers. J. A. GREEN, Ottawa, Ill.

WANTED To exchange 160 acres heavy timbered hardwood land in N. E. Ark. First-class corn, cotton, clover, and fruit land; foothills of the Ozarks; 6 miles from railroad; for suburban home with small orchard, in middle Eastern State. Tell what you have. J. E. DART, Connesauga, Ga.

WANTED—To sell one-half interest in a paying bee-business, 1000 colonies. R. T. STINNETT, Mesilla Park, N. M.

WANTED—To sell a two-basket Ferris wax-extractor, one extra basket, nearly new, for \$8.00; regular price, \$12.00. We can guarantee this machine to be in good order, and at the price we offer it, it is a bargain. THE A. I. ROOT CO., Medina, Ohio.

WANTED—To sell or exchange gasoline-engines for all purposes—stationary, marine, bicycle, etc.; want machinery of all kinds.

Robert B. Gedy, LaSalle, Ill.

WANTED—To sell Rocky Ford cantaloupe seed. Seed of these famous melons postpaid, 40 cts per pound. Choice selected stock.

H. F. HAGEN, Rocky Ford, Colorado.

WANTED—To sell or exchange 2000 Hoffman frames filled with combs; also Dovetailed hive-bodies, bees, and fixtures, and two dozen Persian pea-fowls—a bargain.

B. J. Cross, Cherokee, Alabama.

WANTED—A dovetailing machine for making hive-bodies; also a two-frame Cowan honey-extractor.

W. N. CANNON, Greenville, Ala.

WANTED—To buy a second-hand saw-mill, heavy (top and bottom saw). 216 Court St., Reading, Pa.

WANTED—A buyer for my 80-acre tract of land in Crawford Co., Mo., at \$10.00 per acre, one-half cash; balance on time payment. Address

LOUIS WERNER, Edwardsville, Ills.

WANTED. Position under an experienced bee-keeper, by single man, 30 years old; member of M. E. church; experience limited to care of few colonies on farm.

R. M. BLACK, Indianola, Ia.

WANTED—To exchange for bee supplies or any thing I can use, one Monarch 600-egg incubator, one Successful 200 egg incubator, three Des Moines outdoor brooders, capacity 200 chicks each. All in good condition. Or will sell cheap for cash.

F. A. GRAY, Redwood Falls, Minn.

WANTED—An assistant apiarist; have 500 colonies. State age, experience, and wages desired. Give reference.

W. HICKOX, Berthoud, Colo.

WANTED—A lady who would like to spend the winter in California can pay for her board in a private family by reading aloud a few hours each day. One interested in bees preferred.

MRS. E. B. BEECHER, Auburn, Placer Co., Cal.

WANTED—To exchange 60-lb. cans, perfectly bright and good as new, 25c each, f. o. b. here, for honey or wax.

G. I. BUCHANAN, Holliday's Cove, W. Va.

WANTED—To exchange a 45 cal. Remington rifle for a second hand bicycle.

P. KROEGEL, Sebastian, Fla.

WANTED—Situation by sober, active, practical, bee-man. Capable of taking charge.

W. S. FRAZUR, 1705 Rembrandt St., Indianapolis.

WANTED—To sell two lots with small house and a 10-acre lot, small grove orange-trees. Want a two-horse mower and bone-cutter.

C. G. ADAMS, Sorrento, Fla.

WANTED—To exchange an oil-stove (heater), value \$3.00, and standard-bred B. P. Rock cockerels at \$1.00 each, for bees or supplies. Write offers quickly.

G. M. RANUM, Perry, Wis.

WANTED—To sell 11, 50 colonies of bees, Italians; \$120 buys the whole outfit. Write for particulars.

SAMUEL COLLIER, Elizabethtown, Pa.

WANTED—To exchange, 6-in. foundation-mill, and 140-egg Star incubator, for wax, bees, or cash.

I. J. STRINGHAM, 105 Park Place, New York.

WANTED—Extracted honey. Kindly quote prices. MYERS BROS., 234 Spruce St., Hannibal, Mo.

WANTED—A competent person to take charge of my apiary. Correspondence solicited. Address

WILBER WOOD, Ono, Pierce Co., Wis.

WANTED—To know who has 200 colonies of bees to sell cheap; also what young man would like to serve an apprenticeship with Quirin the queen-breeder.

H. G. QUIRIN, Parkertown, O.

WANTED—To sell, improved comb foundation. Send 10c for sample, by mail.

H. VÖGELER, New Castle, Cal.

QUEENS!

Friends, we are again preparing for queen-rearing on a large scale for 1902. We are headquarters for queens and nuclei in large quantities as well as for small lots.

Visalia, Cal., Sept 19, 1901.

I want 24 queens just like those I got of you four years ago. I think that they were called Honey-gatherers. WM. B. PARR.

We can begin mailing early queens by Feb. 15. Prices: Tested, \$1.50 each; \$8.00 for six; \$15.00 per dozen. Untested, February, March, April, and May, \$1.00 each; \$5.00 for six; \$9.00 per dozen. Fine breeders, \$5.00 each. Send for our catalog, free by mail; tells how to rear queens, and how to keep bees for profit.

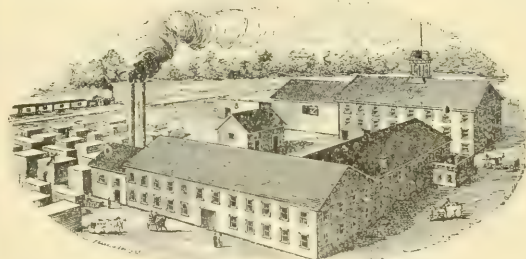
The Jennie Atchley Co.,
Beeville. Bee Co., Texas.

Now Ready!

Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,
Wetumpka, Elmore Co., Ala.



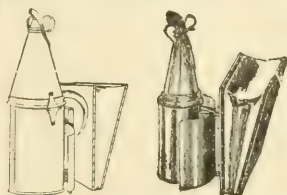
Kretchmer Mfg. Co., Red Oak, Ia.

BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of the Alternating Hives, Peterson Supers, etc. Write at once for a catalog.

— AGENCIES —

Trester Supply Co., 103 So. 11th St., Lincoln, Nebraska; C. C. Richards, 1223 17th St., Denver, Col.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

ALBANY.—Honey market unchanged since our last, with but little comb honey of any kind here. Selling fancy white, 15; No. 1 white, 14@15; mixed, 13@14; buckwheat, 13@13½. Extracted dull except for buckwheat, which is wanted by the Jewish people for their approaching holidays, at 6c. Beeswax, 28@30, with good inquiry.

MACDOUGAL & CO.,
380 Broadway, Albany, N. Y.

NEW YORK.—Market for comb honey is good, with the stock pretty well cleaned up. Small lots coming in now and then which find ready sale and fair prices. We quote comb honey to-day as follows: Fancy white, 14@16; A No. 1 white, 14@15; No. 1 white, 13@14; No. 2, 12@12½; fancy buckwheat, 11@12; No. 1 buckwheat, 10@11; No. 2 buckwheat, 9@10; mixed, 11@12. Extracted honey, demand fair, supply good; white clover and basswood, 6@7; light amber, 5½@6; amber and buckwheat, 5½@6. Beeswax, 27@29.

CHAS. ISRAEL & BROS.,

Jan. 20. 486-490 Canal St., New York City.

CINCINNATI.—The demand for honey is fair. Extracted honey is offered very freely. Dark brings 5; lighter, 5½@6; fancy, 6½@7½. Fancy comb, 15; lower grades, 12½@13½. C. H. W. WEBER,

Jan. 21. 2146 Central Ave., Cincinnati, Ohio.

SCHENECTADY.—Our market is very quiet at present, and well supplied with white clover, but no buckwheat comb honey on hand. We quote No. 1 white 14@15; No. 2, 13@14; buckwheat, 12@13. Stock of extracted greatly reduced but no great demand; light, 6@7; dark, 5½@6.

CHAS. McCULLOCH,

Jan. 20. 1 Eagle St., Schenectady, N. Y.

DENVER.—No. 1 white comb honey, \$2.75 to \$3.00 per case of 24 sections; No. 2, \$2.50 to \$2.65. Extracted, 7@8. To bring these figures honey must be graded according to rules of the Colorado State Bee-keepers' Association. Beeswax, 22@26.

COLORADO HONEY-PRODUCERS' ASS'N,

Jan. 21. 1440 Market St., Denver, Col.

PHILADELPHIA.—Market has been light sales since the holidays. Car of California bottled honey having been sent to this market and demoralized the trade and hurt the sale of good honey for years to come. We quote fancy comb 16; No. 1, 14. Extracted, 6@7. We are producers of honey—do not handle on commission.

WM. A. SELSER,

Jan. 24. 10 Vine St., Philadelphia, Pa.

MILWAUKEE.—The honey trade has not been what it seems should have been thus far this year, but because of the limited demand we continue to expect an improvement in the near future. The supply is not large, and shippers of fancy can ship to us and expect good returns, and we continue to quote fancy 1-lb. sections 15@16; A No. 1, 14@15; No. 1, 13@14; amber, nominal 12½@14. Extracted, in bbls., kegs, or cans, white, 8@9; amber, 5½@7½. Beeswax, 26@28.

A. V. BISHOP & Co.,

Jan. 20. 119 Buffalo St., Milwaukee, Wis.

SAN FRANCISCO.—Comb honey, 10@12; extracted, water-white, 5½@6½; light amber, 4@5½; dark, 4@5. Beeswax, 27½@30. The winter in California has been a dry one; in consequence the prospects for the coming season are decidedly blue in the southern part of the State. As the bulk of the honey is produced in that section, prices are stiffening, and will advance unless rains come very soon.

Jan. 9. E. H. SCHAEFFLE, Murphys, Calif.

BOSTON.—Our market continues somewhat dull in the demand for honey, while stocks are ample for the balance of the season, unless there should be a much larger demand than we at this moment anticipate. Prices remain about the following: Strictly fancy, in cartons, 15½; A No. 1, 15; No. 1, 14½; very little No. 2 to offer—stock nominally running No. 1 and A No. 1. Extracted light amber, 7½; amber, 7; Florida honey, 6½@7.

BLAKE, SCOTT & LEE,

Jan. 20. 31, 33 Commercial St., Boston, Mass.

CHICAGO.—The honey market is of a slow nature, with little change in price of any of the grades. Choice grades of white comb honey, 14½@15; good to No. 1, 13½@14; light amber, 12½@13; dark grades, including buckwheat, 10@12. Extracted white, 5½@7; amber, 5½@5¾; dark, 5@5½, the scale of prices varying according to flavor, body, and package. Beeswax steady at 28.

R. A. BURNETT & Co.,

Jan. 24. 199 South Water St., Chicago, Ill.

FOR SALE.—Four 10-gallon kegs white extracted honey, clover and basswood mixed, now candied, price 7½ cts. per lb., f. o. b. here. Also four 10-gallon kegs and five 5-gallon jacketed cans of fine amber honey just extracted, fine flavor and doubly ripened, very thick and waxy, 6½ cts. per lb. Large sample free.

O. H. TOWNSEND, Otsego, Mich.

WANTED.—Honey; car lots or otherwise. Will send man to receive when sufficient amount to justify, and pay highest market price, spot cash. Address, stating quantity, quality, and price desired at your station.

THOS. C. STANLEY & SON, Fairfield, Ill.

WANTED.—Comb honey in any quantity. Please advise what you have to offer.

EVANS & TURNER,

Town St., Cor. 4th, Columbus, Ohio.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.

SEAVEY & FLARSHEIM,

1318-1324 Union Avenue, Kansas City, Mo.

FOR SALE.—Fancy and No. 1 comb honey, about 2000 lbs. or more.

WM. MORRIS, Las Animas, Col.

FOR SALE.—Extracted honey, from alfalfa, at 7c per pound. Send for sample.

D. S. JENKINS, Las Animas, Col.

FOR SALE.—A quantity lot of well-ripened clover honey in 60-lb. cans.

B. WALKER, Clyde, Ill.

FOR SALE.—Clover and sweet-clover extracted honey at 7c, in kegs and cans.

DR. C. L. PARKER

Sta. A, R. F. D., Syracuse, N. Y.

FOR SALE.—1000 lbs No 1 and fancy comb honey.

H. L. LEONARD, Brandon, Vt.

Satisfied Customers,

and their numerous expressions of the superiority of my queens warrant me in continuing the arrangement of my queen apiaries in 1902 as in 1901. I have watched carefully, and have selected the queens whose colonies gave me the best results in HONEY, for my queen and drone mothers.

Yard No. 1 consists of a combination of the Root Long-Tongued Clover Stock, the Superior Stock so much Advertised by Hutchinson, and a Selection of My Own Stock that I have been Breeding for years, in regard to which I have the following:

Buffalo, N. Y., Aug. 31, 1901.

My Dear Victor:—Queen and nucleus arrived safely yesterday; made entrance to nucleus and allowed them to fly yesterday. Transferred them to a Dovetailed hive this morning, *without smoke, and handled them, patting them on the back, and I never saw such quiet and docile bees.* If their working qualities are as superior as their handling, I am prepared to say you have the best bees I have ever met with, which would include some 25 or 30 different breeders, and all the well-known races.

Yours very truly,

OREL L. HERSHISER.

The colony of one of the queens I have selected for a breeder in this yard gathered right about 400 pounds of honey last season. I have not measured her bees' tongues, but they are ALL RIGHT, LONG OR SHORT.

Yard No. 2 consists of imported Italians, daughters and granddaughters. For further description see ad. later. Testimonials on application.

Yard No. 3—GOLDEN BEAUTIES or 5-banded Italians.

I am now booking orders for spring delivery; first come first served.

Untested queens: 1, \$1.00; 6, \$5.00. Select untested queens: 1, \$1.25; 6, \$6.00. Tested queens: 1, \$1.50; 6, \$8.00. Select tested queens: 1, \$2.00; 6, \$11.00. Breeders, \$3.00 to \$7.00. See circular for specifications.

ROOT'S GOODS AT ROOT'S PRICES, plus carload rate freight..

W. O. VICTOR, Queen Specialist, Wharton, Wharton Co., Texas.

California.

The State that produces carloads of honey; the largest averages of any State in the Union; a mammoth honey association to market the crop; the value of different fields, is told in the

Pacific Bee Journal,
Los Angeles, Calif.,

whose correspondents are successful producers of tons and tons—20 to 80 tons each.

California as a Honey State, by A. J. Cook. Gallup's Bee-keeping Experiences. Nevada Forging Ahead. Utah Bee-keeping. Washington, Oregon, Idaho, and Arizona News. Bee-keepers say the Pacific is one of the best \$1.00 bee-papers, prettily gotten up and illustrated; most appropriate cover design.

Clubbed with GLEANINGS, new or renewal, \$1.00 a year. Grand club with GLEANINGS and Rocky Mountain Bee Journal, \$1.25 a year.

The Pacific Bee Journal, Los Angeles, Calif.
237 East Fourth Street.

"Colorado's Characteristics; the Advantages of Irrigation; and how Western Bee-keeping Differs from that of the East," is the title of a six-page editorial in the Jan. issue of the Bee-keepers' Review.

The editor spent nearly two weeks, last November, with his camera, among the bee-keepers of Colorado; and this "write-up" is the result. It is illustrated by several pictures taken by the editor, showing the mountains, alfalfa fields, "ricks" of alfalfa hay, herds of cattle, apiaries, hives, etc. Mr. M. A. Gill, who, last year, managed 700 colonies in Colorado, producing two carloads of comb honey, begins a series of articles in this issue. His first article is on "Hive-covers," and is the best of anything that has yet appeared on that subject.

Send ten cents for this issue, and with it will be sent two other late but different issues. A coupon will be sent entitling the holder to the Review one year for only 90 cts.

With these copies of the Review will be sent an offer whereby 12 back numbers of the Review may be secured *entirely free*; and the first few who accept this offer will get, as those 12 back numbers, the volume for 1901 complete.

W. Z. HUTCHINSON, Flint, Mich.

Your attention is called to advertisement of Sure Hatch incubator on page 119 of this issue.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

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E. R. ROOT, Editor of Apicultural Dept.

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TERMS. \$1.00 per annum; two years, \$1.50; three years, \$2.00; five years, \$3.00, *in advance*; or two copies to one address, \$1.50; three copies, \$2.00; five copies, \$3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making this request when ordering.

RATES OF ADVERTISING. These will be furnished on application.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

Barred Plymouth Rocks Exclusively. Bred for business and beauty by an expert poultryman. My birds are a combination of the best strains in America. Eggs and stock in any quantity.

Chamberlin Hill Poultry Farm, Jordan, N. Y.

1200 FERRETS. All sizes; some trained; first-class stock. New price list free. N. A. KNAPP, Rochester, Lorain Co., Ohio.

Angora Goats are handsome, hardy, profitable. Prize stock; low price; circular. ED. W. COLE & Co., Kenton, O.

DITTMER'S FOUNDATION.

Retail—Wholesale—Jobbing.

Having increased my shop-room, put in power and a new set of machines, I am now producing a better article than ever, with unlimited capacity to meet orders. I use a process that produces every essential necessary to make it the best and most desirable in all respects. My process and automatic machines are my own inventions, which enable me to sell foundation, and WORK WAX INTO FOUNDATION FOR CASH, at prices that are the lowest. I make a specialty of working up Wholesale and Jobbing Lots of wax into foundation, for cash. If you have wax by the 10 lbs. or ton, let me hear from you. Catalog giving

FULL LINE OF SUPPLIES

with prices and samples, free upon application. **BEEWAX WANTED.**

Cus. Dittmer,
Augusta, - Wisconsin.

HONEY QUEENS!

Laws' Long-tongue Leather Queens.

Laws' Improved Golden Queens.

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GLEANINGS IN **BEE CULTURE** A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. P. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

VOL. XXX.

FEB. 1, 1902.

No. 3.



LET ME SAY to J. M. Mack that his plan of emptying sections to use the next year is all right *provided* he lets the bees dry them out before the honey in them granulates. I wouldn't be willing to use them if the bees did not clean them out in the fall.

I ADVISE Bro. Aikin not to be big-headed because he devises some useful thing. All the same, if I had gotten up that separator on p. 50, I'm afraid I'd need a hat of larger size. It should be put on the list of beekeepers' supplies. Bro. Aikin, can't you give it a name not already in use for another bee-keeping implement?

MR. EDITOR, I think you misunderstand Wm. Craig, p. 61. He means his bees fly out *while* he is carrying them out. Friend Craig, the trouble is a lack of that fresh air in the cellar that the editor thinks so much of. Open up your cellar the evening before, and let it stay wide open all night, and see if it doesn't quiet the bees so they'll not want to fly out till after they are on the stand. If any are inclined to fly out, give them a little smoke. No harm if the cellar is full of smoke so long as all the bees will be taken out within a few hours.

"EXTRACTED honey can be improved by boiling it," p. 63. Do you mean boiling or heating, Mr. Editor? [I mean *boiling* in the case under consideration; for you will remember that our correspondent stated that he had some honey that soured, and he wished to know how to treat it. Mere heat, while it might do some good, would not bring about the improvement sought. It should be kept boiling for some time. That will arrest further fermentation, and at the same time expel the gases. But not all sour honey can be made sweet, by considerable, by such treatment. If very sour, it had better be converted into vinegar. If honey is slightly tainted with an acid taste, it can generally be improved.—ED.]

"WE HAVE KNOWN that the depths of the cell varied . . . the cells at the start are longer than is necessary," says ye editor, page 48. Worker comb 25 years old will be perhaps $\frac{1}{8}$ inch thicker than when new; but is there any real difference in the depth of the cell? Is not the difference almost if not entirely in the septum? Reidenbach's measurements seem to show that the average contents of a cell does not decrease with age; why should its depth? [Your notion of the matter is the same as mine. An old comb is deeper than a new one by just the thickness of the accumulations in the bottom of the cell.—ED.]

A. MAUJEAN spaces his extracting-combs $1\frac{3}{4}$ inches from center to center, leaves them on till sealed, then cuts them down to one inch in thickness. He thinks the extra yield of wax costs him nothing.—*Rev. Eccler.* [This is a very common practice throughout the West; and extracting-frames are spaced wide, even with Hoffman end-bars. Wax always brings a good price, and very many, perhaps a majority, of the extracted-honey producers, consider that there is more money in producing wax and honey both by using thick extracting-combs, and slicing down each time, than spacing the combs regulation thickness and merely cutting off the cappings.—ED.]

"THERE ARE more bees kept to-day in the old-fashioned box hive than any other style," says L. E. Kerr, in *American Bee-Keeper*. I wonder if that can be true. There are probably more box hives across the water than in this country, and it may be true there, but I suspect that frame hives have the upper hand in this country. [The statement of Mr. Kerr, even if it applied to the whole world, can hardly be true. In Europe there may be more colonies in straw skeps and box hives *combined* than in movable-frame hives. But if the statement is limited to the United States, it is certainly wide of the mark. I presume I have traveled through nearly all the best bee country in the United States and Canada; and the box hive, even with the old-fashioned farmer, is the exception. In my

last 6000-mile trip I do not think I saw a single one; but I did see all kinds of dilapidated *movable-frame* hives.—ED.]

IN GLEANINGS for July 1, 1900, in a footnote to an article of mine, you say, Mr. Editor, "We have heretofore assumed that larvæ just hatched, or larvæ not more than three days old, was the preferred age; but here is a case where the bees evidently had a preference for the five-day limit." The fact that this continues to be quoted in foreign journals, and that it is likely to be misunderstood, makes me now refer to it. While you may have meant all right, there is danger that you may be understood as meaning: "In this case the bees preferred larvæ five days old to any thing younger." This is not true. The only possible *preference* at all in that line would be expressed thus: "The bees preferred to wait till some of the larvæ were too old for good queens, rather than to start all cells earlier." Now let me give the truth deduced from my investigations—the truth that I think any one will deduce from any fair investigations—it is this: Bees will not start queen-cells with larvæ as old as three days when younger larvæ are present; but they will continue to start queen-cells after all the larvæ present have become too old for that purpose. Will my good friend of the *Review* say whether he believes this to be the truth? [I accept your amended correction.—ED.]

THE EDITOR seems to have mounted the hobby of lots of fresh air for bees in winter. I have been riding it myself for some years. Sometimes toward spring the temperature is 50° in the cellar and the bees quite noisy. Cellar too warm? No, that's not the trouble. It's 50° outside as well, and so there is no change of air. I'll start a fire and make it still warmer, so the air will change, and when the fire dies down it will be as warm as ever, 50°; but they will be quiet, because they have fresh air. [Yes, I now recall that you have been an advocate of fresh air in bee-cellars, but I had forgotten it. If I understand you, you agree with me that the temperature is not nearly so important as fresh supplies of air given often. Last winter there was a great range of temperature in our bee-cellar, ranging from 35 to 65, and yet we had perfect wintering, because the bees had fresh air all the time. I am beginning to feel that the bee-keeping world has been laying too much stress on temperature, and not enough on ventilation. For example, we kept our bee-room closed two nights; but the bees began to roar and fly out. Then we let in fresh air, and, presto! all was quiet.—ED.]

REPLYING to your question, page 48, Mr. Editor, I freely admit, and have always admitted, that a colony with short tongues may gather more than one with long tongues. That does not militate in the least with the fact that length of tongue reach is absolutely essential to get the red-

clover nectar. Now let me suppose a case. Suppose 100 acres of red clover with tubes of such depth that a tongue reach of less than .19 will fail to get the least taste of nectar. Of what avail will be all the best qualities in the world, if the bees have not the necessary .19? Another question will you please answer: Can bees do any thing on red clover without sufficient tongue reach? If they can not, is not tongue reach an essential? [Your supposable case is hardly in the realm of probability. Assuming that it is, however, you are strictly right. So far as my experience and observation go, all Italians, and possibly some blacks, will gather some honey from red clover providing there are other bees that gather large amounts from the same source. From measurements I have made, there are a good many flower-tubes in a head that are much less than the shortest tongue reach of any bees. Again, there are some seasons when nectar is secreted so freely that even a long tube will be so full that the bees can get a considerable amount before it is beyond their reach.—ED.]

I WILL TRY to answer your questions, p. 48, Mr. Editor. In the first place it should be understood that grammars and dictionaries do not make rules and definitions. The usage of the best speakers and writers alone decides what is right and wrong, and dictionaries and grammars are authority only so far as they tell what that usage is. When that usage changes, then the books must change if they would hold their places as authority. A grammar does not make right usage—it merely records it. You ask, "How can a word be grammatical when it violates all present rules of grammar?" When all the best speakers and writers unite in a usage entirely different from that laid down in the grammar, then the grammar to that extent has become antiquated and must be changed. I think that also answers your question as to how a word can be grammatical now that was not grammatical in the past. Compare the oldest English grammar published and see if it agrees with the latest. [Say, doctor, you are irrepressible. I thought I had you squelched; but even if you have the better of the argument I'll not admit it to you. No, sir, I'll say "shook" when, according to my notion, it expresses better the Dutch method of treating a swarm to the average reader.—ED.]

WE'RE BAD, but we're not as bad as somebody else. In 1900 the drink consumption in the United States per capita was 14.7 gallons; in Germany, 30.9; in Great Britain, 33.2; in France, 33.6. [I have faith to believe that, in the very near future, these figures in all of the countries will be reduced. Germany, the country that has been quoted as favoring beer for its people, is now waking up to its sense of danger. The iron Bismarck, before he died, said that Germany had more to fear from beer than from any other enemy; and the

young emperor is taking some decided steps to cut down its consumption. Verily the world is moving, because it can not be and shall not be that it grows worse. There never was a time when there was so much healthy public sentiment against the drink-evil as now. Some day this sentiment will crystallize into one unit of force, and the American saloon in our own borders will be made to step down and out. There is power enough in the churches to enable the people of the country to do it now. The trouble is, the enemies of the saloon are not agreed as to the best method of killing it, while the *friends* of the saloon are putting up a united front. When we temperance people can stop criticising each other and can concentrate our forces into one united effort we shall accomplish something, and that time is rapidly coming in this country.—ED.]



We think more kindly of the flowers
And the things that summer brings,
After facing winter's tempests
And old Zero's frosty stings.

AMERICAN BEE JOURNAL.

"Buckwheat Cakes and Honey." Words by Eugene Secor, music by G. W. York. Send Pickings a copy, Mr. Editor. I hope those cakes will not be flat; and I hope the *do* will not be sticky. Such cakes are the *staff* of life in a *measure*, at least on a small *scale*. Can't you send us *tenor* a dozen?

Some two weeks ago the Chicago Beekeepers' Association, of which Mr. G. W. York is President, made out a brief statement in regard to the canards relative to manufactured comb honey. This statement was very brief, and was signed by Dr. C. C. Miller and Camille P. Dadant as well as by the President. A copy of it was presented to the editor of the *Chicago Tribune*, the worst offender in circulating this absurd story. It was returned with the following gratifying intelligence:

The editor of the *Tribune* regrets that he can not make use of the manuscript, which is respectfully returned herewith. This does not mean necessarily that the article is not meritorious, as, on account of the large number of manuscripts received, it is not possible to print all.

Mr. York makes a center shot in his reply to this expressed determination to do a great wrong and persist in it:

But little comment on this is necessary. The *Tribune* thus admits that it had room to publish lies about honey, but it has not the space to allow the truth to appear about it! We hope those of our readers who are so unfortunate as to read the *Tribune* will let its editor know what they think of its way of doing things. It has plenty of space for liquor-dealers' advertisements, sporting stuff, etc., but declines to cor-

rect its own statements that are of untold damage to an honest industry.

Doubtless this expresses the feelings of all parties concerned. Whether this strong language will pierce the skin of these editorial pachyderms remains to be seen.

In refreshing contrast to all this is the conduct of the *Chicago News*. The statement that was refused a place in the *Tribune* was printed in the *News* in full, with large screamer headings, as we learn by Mr. York's paper of the 23. He says:

When it is known that the *Chicago Daily News* has an evening circulation of about 300,000, it will be seen what a wide reading the report will have. Up to the time of this writing, no other daily paper in Chicago has published the report, though all the morning papers were furnished a copy of it by us in person.

The complete refutation of the slander will now probably be an easy matter, as so many editors have come to see the light; but, like a suppressed fire, it will stand watching lest it break out again in a few months. King Error wields a strong scepter over the minds of men to-day.

BRITISH BEE JOURNAL.

"The Biology of the Honey-bee: its Development During the Nineteenth Century," is the title of two articles that appeared in our London exchange last November, from the pen of that able writer Mr. R. Hamlyn-Harris. They now appear in the form of a little tract of four pages. It would be hard to find more of interest in so little space.

The writer gives a brief history of bee-keeping down to the present time. He says the Dickel theory has been shown to be erroneous and incorrect, but lays great stress on the Dzierzon theory. Concerning the introduction of the movable-frame system, the author says:

Dzierzon, by his careful observations and practical ideas, which ultimately found outlet in the introduction in his apiary of the movable-frame hive, brought about a vast improvement on the old skeps of his day.

There can also be no doubt that long before Dzierzon's time hives of somewhat similar construction were used by single individuals, as is shown in the history of the ancients.

Della Rocca's book, "Traites Complets sur les Abeilles" (dated 1790), which appeared in Paris, shows that the movable-frame hive was not unknown to him, and the conclusion has been arrived at—consequent upon Della Rocca's work—that the discoverers of the movable frame were the Greeks, but that Della Rocca was the first to utilize the same in a wooden hive fitted up for the purpose. The Napoleonic and other wars of the period were, no doubt, instrumental in causing this work to be almost entirely forgotten for the time being, so that we owe to Dzierzon the fact that during his life, and on his initiative, the movable frame hive should have come into general use.

Mr. Harris does not claim that Dzierzon invented the movable frame, but his bias, if not lamentable prejudice, prevents him, as the reader will see, from making any mention of Mr. Langstroth. We are informed on good authority that movable frames "ultimately found outlet" into Mr. Dzierzon's apiary only when their general acceptance rendered his further opposition to them ridiculous. To give Mr. Dzierzon any praise for the introduction of movable frames, and yet omit any mention of Mr. Langstroth's name, is strange indeed. The world's ver-

dict is quite the other way, and will probably never be reversed.

The remarks of the author on the progress of anatomy and biology since 1840 are interesting in the extreme, showing that nearly all that is worth knowing on these vital subjects has been learned during the very short period of human existence comprised within sixty years. We owe the writer more than a passing "vote of thanks" for this little essay, for it is one of great merit.



GUARDING AGAINST STARVATION.

"Good morning, Mr. Doolittle. I have come almost half way across the continent (by letter) to have a little talk with you regarding the best way to guard against bees starving before feeding can be done in the spring. I have fears that my bees have not honey enough to carry them through till warm weather comes."

"Really, what you wish to know, then, is the best way to guard against bees starving in winter."

"Yes, that is right."

"Then I am inclined to answer, the *best* way is to *know* that each colony has sufficient stores in the fall to last till the flowers bloom in the spring; and if we know this we need have no fears as to their safety along this line."

"How much stores should each colony have on the 15th day of October, so that I might know that there is no danger of starvation before the flowers bloom in the spring?"

"When I first began bee-keeping I found one writer saying that 35 pounds was the needed amount, while another gave 25 pounds as right for a colony where wintered on the summer stand, and 20 pounds for those colonies which were to be wintered in the cellar during four or five months of the coldest weather."

"But suppose they do not have 25 pounds in their hive October 1st to 15th; what is to be done?"

"Each colony should be fed enough to make up that amount, and it will be much better to do the feeding the fore part of October than later."

"What should I feed?"

"In feeding for winter stores I find the following formula the best of any: Pour 15 lbs. of water into a suitable-sized vessel, and set it over the fire till it boils. Then stir in 30 pounds of granulated sugar, stirring so it will not settle to the bottom and burn. As soon as the whole boils, set it off the fire and stir in 5 lbs. of extracted honey. This makes 50 lbs. of good feed for wintering."

"But suppose some colonies have more stores of honey than they need, and others not enough—what then?"

"If you have movable-frame hives the matter is very simple—just exchange frames, taking full frames from the heavy colonies and giving them lighter frames from those not having sufficient, till all colonies have the desired amount, when, if any are still lacking, they can be fed with the sugar syrup, as spoken of before."

"But the question I really asked was not from the time the flowers ceased blossoming in the fall till they commenced again in the spring, but till feeding can be done in the spring. How much would be needed in that case?"

"This is something different, and something not often spoken about, yet it is something well worth knowing; for I claim that, if there is any time when it is profitable to feed colonies to keep them from starving, it is in the spring of the year."

"Why?"

"Because if we let them die now we lose all they have consumed thus far; and, besides, feeding in the spring tends toward bringing the colony in the very best possible shape to give a good yield of honey during the honey harvest."

"Do you think, then, it would be better to reserve feeding till spring, for this purpose?"

"I would hardly wish to say that, for I think October is the month to know that all have honey enough to carry them through till flowers bloom in the spring. However, there are some good apiarists who advocate this, believing it to their advantage to reserve the feeding necessary to be done to give sufficient stores during April and May, till April and May arrive, providing we can know that no colony will starve before that time."

"Did you ever work on that plan?"

"Yes. One fall I found my colonies averaging quite light in stores; and as I was short of money to buy sugar with I allowed only 18 lbs. to each colony designed to be wintered on its summer stand; and from 12 to 14 lbs. for those to be placed in the cellar, and found, by equalizing the stores in all, that I did not have to feed that fall. These were fed in the spring with a cheaper grade of sugar than could be used for fall feeding, and they built up and did well; but on the whole I prefer to feed in the fall all that is necessary to last till apple-bloom."

"But suppose the colonies have been neglected in the fall so that I do not know just how many pounds each colony has; or this has come about through sickness in the family, how am I to guard against starvation in such a case?"

"On some mild day when it thaws a little, without the sun shining (you can see best on a cloudy day), go over the colonies which are out by removing what you have over the cloth covering to the frames, and then gently roll this covering up till you

come to the cluster of bees, when you can carefully note the amount of sealed honey not covered with bees. If you find plenty of sealed honey along the top-bars to the frames, you can set that colony down as having enough till April. If plenty in half of the combs, then it is probably good till March. If very little, then it should be looked after in two weeks; and if none at all, it should be fed at once. All not needing feeding at once should be left with the hope that a day warm enough for the bees to fly may occur, when all needing attention should be looked after; but should no such day occur, then they should be attended to before they starve, no matter what the weather."

"Well, how shall I feed at this time of the year?"

"My way has been to take frames of honey from those in which I see much sealed honey, and give to those about to starve, taking out the outside combs of honey on any day when I could best do so, and putting dummies in their places. I now place these combs in a warm room for four or five hours till they get thoroughly warmed through, when I go to the destitute colony, take out one or two empty combs on the outside, divide frames near the center of the cluster of bees, using smoke to keep them from flying, and set in the warmed combs. In this way any apiary which had enough stores on an average, so that each colony could have had 12 lbs., had the stores been equalized in the fall, can be brought through till we can feed in the spring."

"Suppose the colonies are in the cellar."

"The same plan can be used there with all colonies where the combs can be gotten at; otherwise they will have to take their chances. But colonies in the cellar will generally go till they are set out, should they have as much as 6 lbs. in the hive when they were set in."

"How about feeding in the spring?"

"This can be done with feeders in the regulation manner, as given in the books; but feeding with any thing but combs of sealed honey during the winter months has been very unsatisfactory to me."



NOTES FROM A HONEY-MAN.

Thick Top-bars Preferred; Selling Honey; a Joke on Hershiser.

BY S. A. NIVER.

Mr. Editor:—Every little while some item in GLEANINGS will almost persuade me to get out the old quill and take a hand in the fracas; but my almost insurmountable mod-

esty makes it easier for you by keeping me silent. Just what makes me bristle up this time is that thick or thin top-bar controversy between Pettit and Dr. Strawcutter, for it's many a weary hour did I work at the sticky job of exchanging $\frac{3}{8}$ pine worm-eaten top-bars for $\frac{3}{8}$ basswood ones. Please read that last part over again, and read it slowly, for it sums up Morton's conclusions after many years of experimenting. You may remember that Morton always had enamel cloth over his frames or supers in summer, and worms (apologies to Prof. Cook) would get on top of the pine top-bar, and bore or eat holes enough there to weaken it so it would sag more than it naturally would, on account of being too thin; but they never trouble basswood.

I am keeping at the canvassing from house to house with extracted honey, and have handled 8750 pounds this season, and was put out of commission by the grip for four weeks besides. There are many vexatious little points to settle before the system will work all smoothly; but every one met and conquered makes it easier. One little incident I want to tell you about, for it makes me feel real *toney*.

I am in the habit of going over my territory about once a month, and so in the course of my rounds I called on a customer who had a dollar's worth the first trip. A chap of twenty years or thereabout answered the door-bell, and, to my inquiry if the lady of the house was in, replied, "*No, she is out.*" Then I explained the case, and asked if that first lot of *honey* was gone yet, and if they wanted more.

Say, Ernest, you would have enjoyed seeing the smiles thaw out the frost on that young chap's face. He swung the door open wide enough to let in a pair of honey agents, and said, with a hearty ring to his voice, "Oh! you are the honey-man. Come right in. I'll call mother—she is in the parlor. I thought you were a *book agent*."

"There! don't we feel less of that tired feeling, and step a bit loftier, when stray straws like that show how the public begins to recognize our true worth?"

In another house I was told a good yarn on Hershiser, the jolly superintendent of the York State honey exhibit at the Pan-American. The lady had been persuaded to buy a jar of extracted honey there in the booth, "And," said she, "what do you think it was? Why, nothing but sugar syrup flavored with cinnamon essence."

Who would have "thunk it" of Hershiser—our ferociously virtuous Hershiser? But all my assurances of his honesty were of no avail with that lady.

The grocers here are selling tumblers of a clear yellowish liquid labeled *Pure Honey*, which has a sticky effect to the tongue, and a decided flavor and aroma of cinnamon. If they will only keep right on handling such stock, leaving the honey trade to me, they will never hear a word of protest from me.

Niagara Falls, N. Y.



THE long-looked-for rains in California have come, at least in many localities. If this continues it will mean another good year for our friends on our western borders.

IN referring recently to the use of sulphuric acid in refining wax I stated that the acid and water, after standing, would separate. Two or three have written, saying that I must be in error, as the two would unite and stay united. I have not had an opportunity to test the matter; but my informants are evidently persons who understand what they are talking about, and I therefore accept the correction with thanks.

THE NEWLY ELECTED OFFICERS OF THE NATIONAL BEE-KEEPERS' ASSOCIATION.

THE following is the report of the special committee appointed to receive and count the ballots:

We, the undersigned, have this day counted the ballots cast for General Manager and three Directors of the National Bee-keepers' Association, to fill the vacancies caused by the expiration of the terms of Eugene Secor as General Manager, and J. M. Hamblough, Dr. C. C. Miller, and C. P. Dadant as Directors, and find that 338 ballots have been cast, of which Eugene Secor received 172. The other ballots were cast for 109 different members, the largest number of votes for any one of them being 29.

For Directors, J. M. Hamblough received 180 votes; Dr. C. C. Miller, 232; C. P. Dadant, 215. We have also counted the votes cast for and against the proposed amendments to the constitution, and find that 214 were cast for the first amendment, and 93 against it; 263 votes were cast for the second amendment, and 47 against it.

A. B. MASON,
S. J. GRIGGS.

Toledo, O., Jan. 27.

Com.

The General Manager, it seems, was re-elected in spite of his expressed wish not to serve again. This surely bespeaks confidence, and an indorsement of the policies pursued under the several terms of his administration.

THE RAMBLER FINDING HIS "FOUNTAIN OF ETERNAL YOUTH" IN CUBA.

A SHORT time ago, in a private letter to John H. Martin (Rambler), now in Cuba, I gave some fatherly (?) advice to the effect that he should remember that he was no longer a young man, and that he should go easy on his strength, and, above all, not to get too enthusiastic over a bee company. This is the way he comes back at me:

Bless me! Did you think I was hankering after running a big bee and honey company? Not much. I am merely blazing the way for younger men. And let me tell you, Bro. Ernest, I am about ten years younger here than I was in California. Don't you throw out that I am too old for any thing. Why, I laid out that big robust Somerford the other day on a rough wheel-trip. I haven't had such a good appetite and digestion for years as I now have. I haven't decided yet what I shall do or how long I shall stay. Cogshall will be here soon, and several of us are planning a trip to the Isle of Pines. I may buy me a little farm over there.

But I have another bee in my bonnet. I am getting photos of almost every thing in sight, and shall have lots of lantern-slides. How about a grand lantern lecture-tour of the States—lectures on California, Cuba, and on bee culture? I am wondering if you will say. "You are no longer a young man."

Let me see. Our young friend is only 62, or 23 years older than his paternal (?) adviser. A little later on I'll show you how this youthful cyclist can "scorch" (for I caught him in the act), even if he is a regular down-east Yankee. Some call him "Long John." Well, that is just what he is. When I saw him in California he hadn't an ounce of flesh to spare; and here he is out-doing that big Somerford on a bicycle, and now he proposes to tour all over the United States. Come on, John; we will give you a welcoming hand all over the States—I mean we bee-keepers.

I suppose he will tell us something about the Isle of Pines—one of Uncle Sam's recent possessions.

THE PROGRESS WE ARE MAKING FIGHTING THESE COMB-HONEY LIES.

WE are making some progress in counteracting the effect of the comb-honey slanders that have been going the rounds of the press. Certain familiar items have ceased to appear. But don't let us lay down the gauntlet yet; an awful damage has been done to the comb-honey trade because *there are millions of people who still believe comb honey is manufactured, and therefore will not buy our product.*

It is no little pleasure to know that two or three of the great dailies of the country have published the truth about comb honey; but somehow that truth does not seem to get into circulation through *other* papers that have scattered these lies as on the wings of the wind. All honor to the *Chicago Daily News* and *Chicago Chronicle* for publishing the truth about comb honey in displayed head lines. But the *Chicago Tribune*, the paper that took up the defamation of the comb-honey business in the first place, and started this onset of lies, has not retracted, and our readers are requested to keep up their fusillade of letters. Let them feel the *force* and *might* of numbers.

Among the farm papers, there have been quite a number that have published retractions. One or two held out long and hard. Among them was the *Farmers' Guide*, of Huntington, Ind.; but now it has come out with a bright breezy backdown that is truly refreshing; and to illustrate the power that bee-keepers can exert by sending in hundreds of letters, I publish the first paragraph, or a part of it at least, of the last statement that that paper has made:

The unity with which bee keepers guard their interests is one of the most commendable things that has lately come under our observation. If the farmers would take care of their interests as well, no combination could affect them. Not long ago we published an item to the effect that artificial comb honey was being manufactured by machinery, and that glucose and paraffine were used. This brought us denials from all

quarters of this country. These letters were courteous, acrimonious, and blasphemous. They were warm, hot, and red-hot. They were reasonable, sensible, and senseless. It seemed that every bee-keeper in America had "swarmed," and all were being pursued with the dust and noise of a cyclone. They acted as though *The Farmer's Guide* had a most powerful influence to the detriment of bees and honey, and if a well-filled waste-basket could stop the paper or turn the editor into the right channel they would contribute to the basket's fullness. Poor basket! Imagine what it must bear!

Just read that over once more, brother bee-keepers, and then follow up some of the other papers that have not yet published retractions. It seems that the editor of the *Farmer's Guide* finally appealed to the Department of Agriculture, and in reply received a very strong letter from Professor Frank Benton, Apicultural Investigator. It is needless to say that our friend "at court" furnished indisputable proof that comb honey could not be manufactured.

I do not like to keep on *ad nauseam*, urging bee-keepers to write, write, write, to these offending editors; but that is the *only* way we can counteract the evil effects that have been already suffered. Let me now urge that every one of our subscribers send in a short item to his local paper, telling the truth about comb honey, and denying the stories that have been afloat, and see that it finds its way into print. It does not matter whether the paper has published anything against the business or not. C. B. Howard, Secretary of the New York State Association of Bee-keepers' Societies, has written a splendid article setting forth the truth about comb honey, in the *Farm, Field, and Fireside*, a paper of an immense circulation and influence. That's right, keep it up. Let us get the truth prominently before the consumers in such a way they will begin to believe the truth that the comb honey they see in the groceries *is not bogus*.

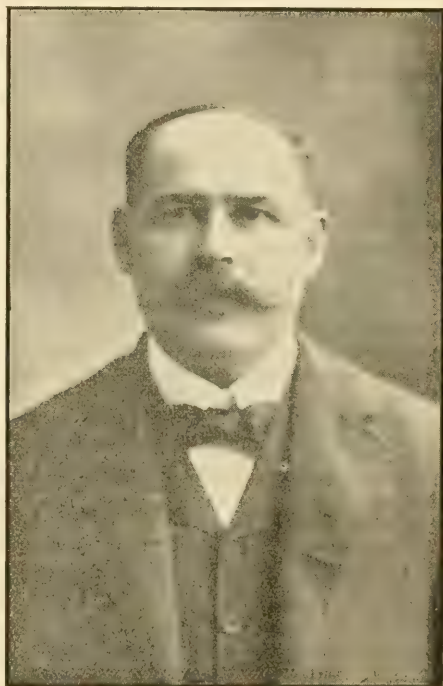
We have already assurance that another farm paper with a circulation of two millions is going to publish an item denying the usual comb-honey lie, and telling the truth. As soon as the item is published we shall place it before our readers.

Regarding the paper against which our attorney began proceedings, I can only state that its editor has promised to make a satisfactory retraction. Our attorney made a trip of a thousand miles to begin his action; but before doing so I think he convinced the editor in question that he "had put his foot in it pretty deep."

OREL L. HERSHISER.

DURING the closing days of last year, Mr. O. L. Hershiser, of Buffalo, Vice-president of the National Bee-keepers' Association, and Superintendent of the apicultural exhibits at the Pan-American Exposition, paid us a visit at the Home of the Honeybees. My first acquaintance with him was at the Michigan Agricultural College, in the summer of 1883, where I had called to see Prof. Cook, the Professor of Zoology and Entomology, and director of the model

experiment apiary of the institution. Prof. Cook being absent at the time, Mr. Hershiser, a student of the college, who was making a special study of apiculture, extended to me the various courtesies of the place. Again, in 1884, I met him at the home of Mr. D. A. Jones, of Beeton, Canada. He, like myself, had come to pay the most distinguished bee-keeper of all the Dominion a visit; for if Mr. H. was any thing he was a bee-keeper through and through. It was his policy, and has been ever since, to learn all he could about bees; and with that end in view he always went to the fountain-heads for information.



OREL L. HERSHISER.

Since that time I have met him at various conventions of bee-keepers; and so interested is he in the subject of apiculture, that, if there is any national or State convention within 500 miles of him, he is pretty sure to be present. He was chosen Vice-president of the North American Bee-keepers' Association in 1893.

Last year he was called in as expert witness at the Utter trial, Goshen, N. Y.; and at the last Buffalo National Convention he was again elected Vice-president. He has been recognized by the State of New York as one of its leading bee-keepers, and his services have been sought on numerous occasions to superintend aparian exhibits—first at the Buffalo International Fair, in 1889, and the Detroit International Fair the same year. He was superintendent of the

New York apiarian exhibit at the Columbian Exposition, in 1893; and again he was chosen for the same service at the Pan-American, Buffalo. At the latter exposition he installed and conducted, as a part of the New York State apiarian exhibit, a model practical apiary of ten colonies, partitioning off a large window in the Agricultural Building for the purpose, and gave frequent exhibitions of the various manipulations of daily occurrence to the apiarist; and his skill, and the success of this novel exhibit, was evidenced by the practical results of 481 pounds of extracted and 523 one-pound sections of comb honey, besides an abundance of honey left in each hive for winter stores, one colony of *black* bees actually producing, under these unfavorable circumstances, 111 fancy 4×5 sections of comb and 30 pounds, or over, of extracted honey. Mr. Hershiser was awarded the gold medal for this exhibit of a model apiary.

Not only an ardent enthusiast on bees, Mr. Hershiser is a practical and successful bee-keeper. He has two large apiaries on the outskirts of the city, and he has made them, in spite of his law business, pay and pay well.

By profession Mr. Hershiser is a lawyer, and for some years he has had a law office in one of the sky-scrapers in Buffalo; but his intense love for the bees seems to draw him, in spite of himself, into the honey business, with which he has been so intimately connected for so many years.

Born in 1856, in Shelby, O., he removed with his parents to Williams Co., in the same State, at the age of six, where he studied in the common schools; worked his way through the Michigan Agricultural College, from which he was graduated in 1884 with the degree of "B. S." He was admitted to the bar in 1891, and has practiced law ever since. From the *Albany Law Journal*, a paper that contains a biography of him, I extract the following:

The story of Mr. Hershiser's early life is similar to that of so many of the sterling men who have shaped and molded their own fortunes and attained to positions of honor and eminence in the city, state, and nation, and who represent the highest standard of American citizenship. He is a self-made man in the truest and best sense of the term. When he was six years old his parents removed to Northwestern Ohio—a region at that time but recently opened up to settlement where they began to hew and form a home out of the wilderness. Thus at an early age the subject of this sketch became acquainted with the labor of reclaiming a farm from the primeval forest, and some of the varied and not altogether poetical experiences and incidents of pioneer life. His early education was obtained at the country district school during the brief winter terms, supplemented by a limited course in the academic department of the village school. Laboring on a Michigan farm, he earned and saved sufficient means to enter upon a college course at the Michigan Agricultural College at Lansing, where, by teaching school or engaging in other employment during vacations, and by the practice of rigid economy, he was able to prosecute his studies to graduation. The same resolute purpose, independence of character, and fidelity to duty have marked his career to the present time.

His early associations instilled in him a love for rural life and pursuits, and the natural sciences pertaining thereto. Economic entomology, with especial reference to apiculture, has become his chief recreation

for the time he can spare from his legal business, and his keen preception and close observation have made him an expert and acknowledged authority on the life and habit of bees and apiculture generally. This fact has been repeatedly recognized. On several occasions, while yet a student, his services were sought to formulate and superintend apiarian exhibits for several large expositions in this and other States.

On the 6th of December, 1899, Mr. Hershiser was united in marriage to Miss Margaret Jane McIntosh, of Toronto, who was born of Highland Scotch parentage at Lucknow, Ontario, Canada, Oct. 4, 1874.

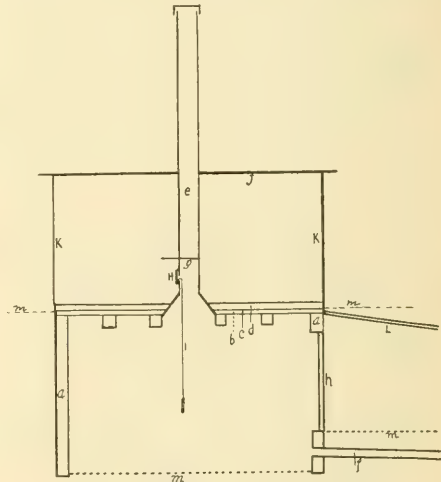
A MODEL BEE-CELLAR.

Some Suggestions on Wintering.

BY HUGO KOEHLER.

Mr. Root:—I was interested in your article about wintering bees in a large cellar, on page 683. Probably it will be of interest to your readers to hear of our experience in wintering bees in cellars.

For the last ten years we have wintered from 150 to 200 colonies in two cellars constructed for that purpose. I have attempted to give you a longitudinal section of one of them. The inside dimensions are 14×10×9 feet. In the figure, *a* represents the walls of the cellar, made of cedar logs hewed on two sides. The cracks between the logs are smeared out with lime; *b*, ceiling of two-



inch plank; *c*, a layer of cement, 2 in. thick, on the ceiling; *d*, a layer of clay mixed with sawdust. The layer is about a foot thick; *e*, ventilator chimney 12 inches in diameter and 8 ft. high over the roof; *g*, a shutter or damper to control ventilation and temperature; *h*, valve through which a thermometer is passed; *i*, string on which the thermometer is suspended; *f*, ventilator canal 4×4 in. on the inside, and 30 ft. long, the outer end of which can be closed at pleasure; *j*, peak of roof; *k*, gables; the rear gable has a door; *l*, roof of a portico; the portico is

about 8 ft. long; *m*, ground-line; *n*, door to cellar.

Having described the cellars, now for our method of wintering.

First we try to have all strong colonies to put in the cellar, so if, in fall, we have weak ones we double up.

Second, we give them healthy food, mostly sugar syrup.

A week before putting the bees into the cellar we thoroughly disinfect them by burning about 2 lbs. of sulphur in each. As soon as the sulphur is fairly burning, the cellars are closed tight and left that way for 24 hours, when every thing is opened to give them a thorough airing.

The bees are put into the cellars the last half of November. On the morning when we wish to place them in, all entrances are closed with laths; then they are taken there and piled up in tiers along the two long walls, placing the lower row about a foot from the ground. When they are all stored away, the door is closed, making the cellar dark; then a man enters with a dark-lantern, and removes all laths. From now on until they are taken out we daily watch the thermometer so that it does not fall below 40° and does not rise above 45. This we can do without entering the cellar, by opening slide *h*, and pulling up the thermometer, which is suspended by a string. The temperature is regulated entirely by the ventilators. In very cold weather the portico is filled up with snow. About the 15th of February we enter the cellar for the first time, after they were put in, armed with a dark-lantern and a long wire hook to scrape out hives if there be any need. From now to the time of taking out (the first half of April) we enter twice more. We take them out on a nice warm day, first closing all entrances again.

We find this method of wintering very satisfactory. Several small bee-keepers have built themselves a cellar like these, and have wintered with more or less success.

[This cellar embodies almost the same principles as the Bingham which we have illustrated on page 933 for Dec. 1st; for it will be noted that the cellar proper is *entirely under ground*, and the upper portion is covered with a gable roof and a ventilator. Mr. Bingham finds it is necessary to have a ventilator up through the roof, about 20 inches square, and it is possible our friend Koehler might find it an advantage to enlarge his.]

I believe that the ideal wintering repository for indoor wintering of bees will be one that is wholly under ground; then when we put with this a generous supply of fresh air, we have ideal conditions. I do not entertain the popular belief that uniform temperature is so important as uniformly good air. Why, for example, do bees outdoors winter so well when the temperature ranges all the way from 70 above to 10 below? It does so here at Medina.

With this extreme variation it should be remembered that the outdoor bees always have plenty of fresh air. Now, then, if we can prevent the extremes of temperature, and get the fresh air just the same, shall we not bring about a condition much more perfect in wintering than has ever been attained before? As I have already explained, the temperature in our bee-cellar last winter where we had such good wintering ranged all the way from 35 up to 60; but the bees had fresh air—great quantities of it—all the time.—ED.]

NOTES OF TRAVEL.

Or, rather, some Observations on Irrigation or Western Farming in General.

BY E. R. ROOT.

I believe brother Root, of *Gleanings*, has prophesied that, within a few years, the great bulk of the honey crop of this country will be produced west of the Mississippi. From a week's visit in Colorado, during which I visited several apiaries, and questioned many bee-keepers regarding the apicultural characteristics of the great West, I am inclined to think that brother Root's prophecy will prove correct. This part of the country is progressing and developing at a rate of which Eastern people have but a faint conception. Those who look upon this country as the land of a burning sun, of shifting sands, coyotes, and cacti, will do well to lay aside that delusion. The explanation of this wonderful change can be given in a single word; the key that has unlocked the great agricultural wealth of the West is WATER.—W. Z. Hutchinson, *Editor of The Bee keepers' Review*.

Before going further with my line of travels among bee-keepers, it seems best, on many accounts, that I should stop just long enough to tell something about irrigation, because it is intimately and vitally connected with the honey business; and one can not very intelligently describe some of the special conditions that prevail in some of those reclaimed Western lands without telling something about how the crops are watered. I have yet one and possibly two articles relating to bee-keeping in Arizona; but as it was in that Territory that I gleaned my first information on irrigation there is no better time than now to tell about it, in order that my other articles on alfalfa may be better understood. In doing so I shall take up irrigation as it prevails, not only in Arizona but in California, Idaho, Utah, and Colorado.

Besides the information gleaned from personal observation on the ground, I am indebted for much that I shall give to Bulletin No. 73 from the United States Department of Agriculture on Irrigation in the Rocky Mountains, by J. C. Ulrich. This is one of the best if not the best short treatise on the subject I have ever read; and those who wish for further information can not do better than send to the Superintendent of Documents, Union Building, Washington, D. C., for this bulletin.

IRRIGATION FARMING IN THE WEST.

The marvelous growth of the western half of the United States is more largely due to irrigation than to any other single agency,

according to Elwood Mead. This same authority goes on to state that it required less experience to plow furrows for carrying water in some of the western arid lands during the early days of irrigation than it takes now to put out a system of underdrains to carry away the excess of water on some of the eastern farms, and I believe it. But irrigation to-day, as I shall presently explain, is much more complicated, with its system of canals, ditches, and laterals than it was at first, when each one irrigated his own little patch from some near body of water.

It was a matter of surprise to me that the knowledge of the practical farmer from the East does not avail him very much when he strikes these arid lands that have to be watered artificially. Almost any one without experience, providing he has good common sense and lots of energy, can do almost as well, because the mode of farming is so strikingly different.

SOURCES OF WATER SUPPLY.

As I have already pointed out, a large portion of the water used for irrigation comes from melting snows on the mountains. In the East, the great amount of precipitation is either in the winter or along in March and April; and the consequence is there is a greater supply of water than is required, and it of course goes to waste. In the mean time the farmer has to wait till the land is dry enough before he can work it. But in the West the greatest supply of water comes at a later period and just at a time when it is needed. When warm weather comes on the snow begins to melt; and this vast quantity of stored-up water, in snow form, is given off under the influence of the unadulterated rays of the sun about as fast as the irrigator can use it. In the mean time he has been preparing his land, fixing up his ditches, and as soon as he is ready for the water he turns it on; and he can have his moisture under absolute control, providing, of course, there are not too many ranchmen taking water from the same ditch, and providing, of course, there is an equitable distribution, which in some cases there is not. It will be seen, then, that the mountains, the very cause of these arid plains, because they form a barrier to the clouds and winds, are the means of catching the snows, preventing them from going into the valleys or upon the plains; that is to say, they are the fountain sources or *reservoirs* for holding the supplies of water that they have borrowed, so to speak, and yet later on pay back in installments.

FARMING IN THE WEST VS. FARMING IN THE EAST.

Right here arises an interesting question: If it were not for these mountains, the probabilities are these arid lands would be watered the same as our land in the humid territory. Would it be better if these great barriers did not exist? I think not, as I shall presently try to show. The farmers

of the East are continually being hampered by having too much water—that is, too much rain at *certain times* and not enough of it at others. As a result, their crops are somewhat uncertain. When they do get a large yield there is an oversupply, and prices are low; and when, by reason of drouth, there is almost no crop, prices are high, but there is nothing to sell. The trouble is not, that in the aggregate there is not enough or too much water, but an *unequal distribution* of it. In the West, the same amount of moisture in the form of snow is lodged on the sides of those great mountains. The sun is bound to shine; and the accumulated wealth (water) that has been stored up all winter can be given off, and is given off just as the farmer wants it, with the result that his crops are reasonably sure in most localities and prices generally good. But right here I may be misunderstood. There are some irrigated regions where the water supply is inadequate some seasons, either because too many ranchmen have located in a certain area, or because the fall of snow is just barely adequate, under favorable conditions, to supply the demand.* When the precipitation has been light, then there is general hardship. It is but fair to state that, owing to the lack of proper laws regulating the number of ranches to the amount of water, there are some localities that are over-farmed, if I may use the term, for the amount of water or precipitation some years, so that the irrigation farmer so located does not have things all his own way; but I think I am not overstating the facts when I say that certainly he has the advantage over his co-laborer in the humid portion of the country, because he has the one important requisite, water, much more nearly under his control.

I think I am also correct in stating that most of the localities are not overstocked, if I may borrow a term from our own industry (apiculture) with farmers. The thinning-out process is sure to come. Some will become disgusted, and move out. Lands that were sold at big prices are worth practically nothing, because it is difficult to get all the water that is needed during off years of light precipitation of snow. In my line of travels, I ran across many and many a ranch that showed the irrigation furrows all over it, but which had been abandoned, and which was then overgrown with sage brush, and occupied only by the jack-rabbit and the coyote. These furrows seem to be silent reminders of the fact that some poor fellow had been induced to go upon these lands from the over-coloring that had been given him, paid big prices, sunk his money, and abandoned his ranch, sadder but wiser.

A WARNING TO PROSPECTIVE IRRIGATORS.

Before I go further I wish especially to warn go-west young men not to be misled

* This is true in the region of Phoenix and Tempe, Arizona.

nor fooled by the extravagant claims of some railroad companies and some irrigation corporations who have land and water-rights to sell? He should go into that territory where he expects to locate, and work one season as a hired man, if he can not afford to lie around; then he should post himself right on the spot; get acquainted with men who have no ax to grind, either because they want to keep him off or because they would like to sell some land of their own that they can not irrigate successfully.

Now, having stated the facts as fairly as I know how on both sides, let us examine into some of the methods. I will first give a sample of how much of the irrigation country was developed.

THE PIONEER IRRIGATOR.

In the early days the pioneer, after having taken a claim near some mountain stream, constructs his own little ditches, irrigates his ranch, and produces good crops. When one "strikes it rich" another is anxious to do likewise; that is to say, perhaps man No. 2 locates on some stream a mile or so above or below No. 1, and in like manner the whole length of the stream, so far as the land will permit, is peopled with the early settlers. But as emigration pours in, all the lands adjacent to the mountain stream are taken up; then gradually some arrangement is made with some farmer, already having a ditch at a favorable location, to enlarge his ditch so the late comer can get water more remote from nature's supply. This process continues until these little ditches that were originally designed to take care of one farmer are so enlarged as to supply water enough for ten or twelve. But as time goes on it becomes apparent that some main ditches will have to be constructed. A stock company, made up of farmers, is then organized, something after the following plan:

A COMMUNITY IRRIGATING STOCK COMPANY.

A certain number of settlers file their claims on government land, which is plotted out, each man having certain holdings. An engineer is called into requisition to figure on the cost of irrigating the whole by means of large and small ditches. The expense, figured up, is so much. We will say in this case it is \$100,000. If there are 100 large ranchers each will take a \$1000 share; if 1000 small ones, the shares will be \$100. Some farmers can pay down the money, while others can not; but the last named have to agree to pay the amount as fast as they earn it, in crops. If they can not redeem it, the land will revert to the stock company, and all rights are forfeited.

This plan has been carried out very successfully in a great number of instances—perhaps in a majority of them, I think. Farmers not only paid out of their earnings, for their full holdings of shares, but have actually made money. They are then in position to sell their holdings, together with the water-rights, to others, or buy up

from each other. Each proportion of share brings with it a proportion of water. This is what is called community irrigation on the stock-company plan.

CORPORATION CANALS.

There are other cases where it is evident that no aggregation of farmers of limited means can afford to put up sufficient money to run great canals perhaps a hundred miles or so up into the mountains and extend them down with their laterals into the valleys below. Sometimes great flumes around the mountain-sides, or tunnels through them, have to be constructed, and nothing short of a gigantic enterprise, involving millions of money, will convey the water from a distance in sufficient quantities. To undertake enterprises on such a scale, immense corporations have been formed for the sole purpose of investment. They buy up government lands, construct enormous canals, and employ an army of workmen to divert the water this way and that, and sell land with water-rights to homeseekers. This is the plan that is in vogue in many localities; but as a rule the ranchman is at the mercy of the corporation, for it can and does charge more for the water than is paid on the community plan. I heard no little complaint of unjust charges in several localities.

GOVERNMENT AID.

In some instances, to construct these large canals State and government aid is needed to help out private enterprise; and it is very evident that, if some of the lands now perfectly arid are to be reclaimed, something more than private enterprise will have to be called in to construct some of those immense canals of size and length sufficient to carry water to the point where it is needed. There are thousands and thousands of acres in the great West that are yet to be reclaimed, or which will remain desert until State and government aid can be called in. It is with no little pleasure that I notice that Congress is now to give this matter some consideration, and it is high time that it should; for the people out west are clamoring for aid, and will have it and should have it, in my humble opinion.

METHODS OF DISTRIBUTING THE WATER ON THE LAND.

One of the first important requisites is to prepare the land in such a way that the water can, by means of little ditches or furrows, be diverted over every portion of it, for it will not do to let one spot get too much and another scarcely any. It must be *evenly* watered to get the best results. Sometimes an engineer is called in to level off the ground, for it is very difficult for the eye to detect the high and low places; but an experienced ranchman is generally able to determine these things very well for himself; and after he has once watered the land he knows where the high and low places are; and before he puts out his crop again he makes the proper leveling by mov-

ing earth from those high spots and shifting it over to the low. Where the land has a slight fall, and is nearly level in its general contour, it presents the most favorable conditions; but even land that is more or less hilly is irrigated very successfully. In fact, I saw farms that, if I did not *know* they had been watered over every inch of the surface, I should have said they could not be successfully irrigated. Yet there is a sort o' trick of the trade by which, in effect, the irrigator makes the water "run up hill" on to the high places,* and from these ridges it flows by little lateral ditches over the entire surface. If the land is too hilly, the ditches, instead of running straight down hill, run on a slant, or, as a woman would say, "on the bias." This is to prevent too great erosion. While some lands are irrigated by means of ditches or furrows, others are watered by means of diking up a plot or square of ground on its four sides, leaving its center as level as a floor. The water is now turned into this general depression until the entire surface is covered like a little lake. It is then cut off, and the water gradually soaks into the ground. But in some localities this procedure causes the ground to bake too hard, and the ditch or furrow method is preferred.

AMOUNT OF WATER REQUIRED BY EACH CROP.

Mr. Ulrich, the author of the bulletin referred to at the outset, says that no definite estimate can be given of the amount of water required for each crop, on account of the differences in locality. "Grain," he says, "requires less water than alfalfa; potatoes less than grain, and fruit-trees less than any of them. For ordinary farm products of the temperate regions, . . . two or three irrigations or applications are usually enough for the production of a satisfactory crop." It would appear, then, that alfalfa, one of the most important crops grown in all the West—if not, indeed, the most important—requires more water than any of them. It is such a rank rapid grower that it very soon converts the product of the soil and water into a strong, lusty, succulent plant. And it is this plant, as I before stated, that makes such slick fat cattle.

In the more southern portions of the United States water may be used almost all the year round. In the more northern portions, such as Colorado, Idaho, and Utah, the water is cut off, and little or none of it is used until the following spring or summer.

THE QUESTION OF PRIORITY.

This is a matter that has received considerable attention in the irrigated lands; and the same problem that confronts the bee-keeper also confronts the irrigator. A great deal of trouble and litigation has

arisen when, in some localities, water runs short. Then the question comes up, "Who has the right to the water?" I think that, in most cases, the courts have settled it that the man who was *first* in the locality, and demonstrated the value of the land, and showed that it could be successfully irrigated, should be favored. It appears that the late comers, unless they have bought some priority rights, are the ones who have to suffer when the supply is scant. So long as there is plenty, the question of priority never comes up.

MAMMOTH RESERVOIRS.

But there is a move on foot now in many localities to establish mammoth reservoirs so that at certain seasons of the year, when the snow melts faster than the irrigation land can take the water, the overplus can be run into these artificial lakes and kept there if the general supply runs short.

COST OF LANDS AND WATER-RIGHTS.

Irrigable land may be had as low as \$15; but ordinarily I suppose the price would run from \$35 to \$100 per acre; and soil that would grow citrus fruits in a climate sufficiently mild, and free from frost, is worth many times more on account of the time it takes to get the trees to bearing age. The use of the water per acre, or what is called "water-rights," varies in different localities. When it has to come from a distance, or when the supply at the source is limited, rights are correspondingly higher; but a fair average for all the water one needs per acre for one season, is somewhere about \$1.00. If one has 100 acres he pays \$100 a year for water; and this payment secures to him absolute control of the moisture in the soil. In some localities the rights are 50 cts.; in others, \$1.50. Where water has to be pumped, as in some of the citrus regions, the rates are higher still. But oranges and lemons do not require more than a tenth the amount that alfalfa does; so that the water-rights in the alfalfa regions, on account of the quantity required, would be higher. But where there is plenty of water—oceans of it, so to speak—citrus fruits can not be raised. Nature seems to have designed that, where land is adapted to the growing of alfalfa, there shall be plenty of water. On the other hand, where the climate is such that there are never any frosts, then the supply is limited. The more I have studied the topography and general conditions in the great West, the more I could not help seeing how wisely the divine mind has planned all these things for his children—yes, us children who live under the Stars and Stripes, and who are made up of nearly every nationality in the world. No matter how diverse our bringing up or notions, we are sure to find conditions in these States where every one can live and prosper.

EXPLANATION OF THE ENGRAVINGS.

From the general description I have already given, I think most of our readers

*This is done by bringing the water from a distance on higher ground; and in order to get it over to the next elevation on a lower level, it is sometimes necessary to carry it in wooden troughs elevated on standards, until the proper level of ground is found.

will understand the various cuts. Figs. 1 and 2 show the main canals, the water for which finds its source many miles away. Sometimes these canals are built on embankments raised above the level of the low ground, just about as one would see railroad embankments. On the very top of the artificial ridge a broad ditch is cut. In Fig. 1, if I mistake not, the land has been elevated somewhat to provide for this.

In Fig. 3 we have an illustration of the regulating structures that are used to control the flow in the several directions from the main canal. These smaller ditches are usually called laterals. As the supply of water may be somewhat limited, we will say lateral No. 1 will get water to-day or to-morrow, and supply the farmers all along its line. Lateral No. 2, at right angles to it, will be opened up while lateral No. 1 will be closed. In some instances there is enough water to supply two laterals at a time. But in any case the amount of water in each lateral is regulated to the number of users on that lateral. This is accomplished by means of wooden gates that are raised up and down between wooden slides. In fact, they are big wooden valves. Their exact construction does not show very distinctly; but if one will look closely he will see in Fig. 3 some wooden standards in the shape of a letter T. The one that has been raised higher than the other two is open while the other two are closed.

In Fig. 3 will be noticed examples of the cottonwood-trees that grow so luxuriantly along these canals; and delightful shady drives are often found paralleling these artificial streams of water. These same cot-

tonwoods are shown in Figs. 4 and 5, but in 4 they are of a younger growth, and are probably not much over five or six years old. In ten years more they will be great massive shade-trees with trunks from 10 to 20 inches in diameter. All through Arizona one can trace the line of the ditches clear across the country by the splendid rows of cottonwoods growing along their banks. Sometimes there is a ditch on each side of the road. In that case there is a handsome arch of shade for miles.

Fig. 4. This represents the "furrow method" of watering the ground. As I understand it, the water is allowed to run from the ditch in the foreground into each little furrow; then it is cut off by a shovel-ful of earth, and the next furrow is opened up. Clear over by the trees will be seen two men called irrigators. They are irrigating the crop on the other side of the road by opening up the furrows, as I have described. These cottonwoods are probably alongside of the main canal from which the water is diverted into these smaller ditches. One can see how very, very level the country is in some of these irrigated regions from the cuts here shown.

Fig. 5. As one goes through the irrigated regions he will run across scores of these main canals, some of them being a hundred miles or so long. Where the fall is great enough to make an erosion of the bank, small dams are run across the ditch at intervals of one or two miles. This keeps the water a still-running stream, or comparatively so, and yet keeps the ditch full so the water can overflow and run into the laterals.



FIG. 1. AMITY CANAL, ARKANSAS VALLEY, COLORADO.

From U. S. Dept. Agriculture, Bulletin 73.



FIG. 2.—CANAL NEAR BILLINGS, MONTANA
From U. S. Dept. Agriculture, Bulletin 77.



FIG. 3.—DIVISION GATE ON IRRIGATION LATERAL, NEAR ROSWELL, NEW MEXICO.
From U. S. Dept. Agriculture, Bulletin 77.

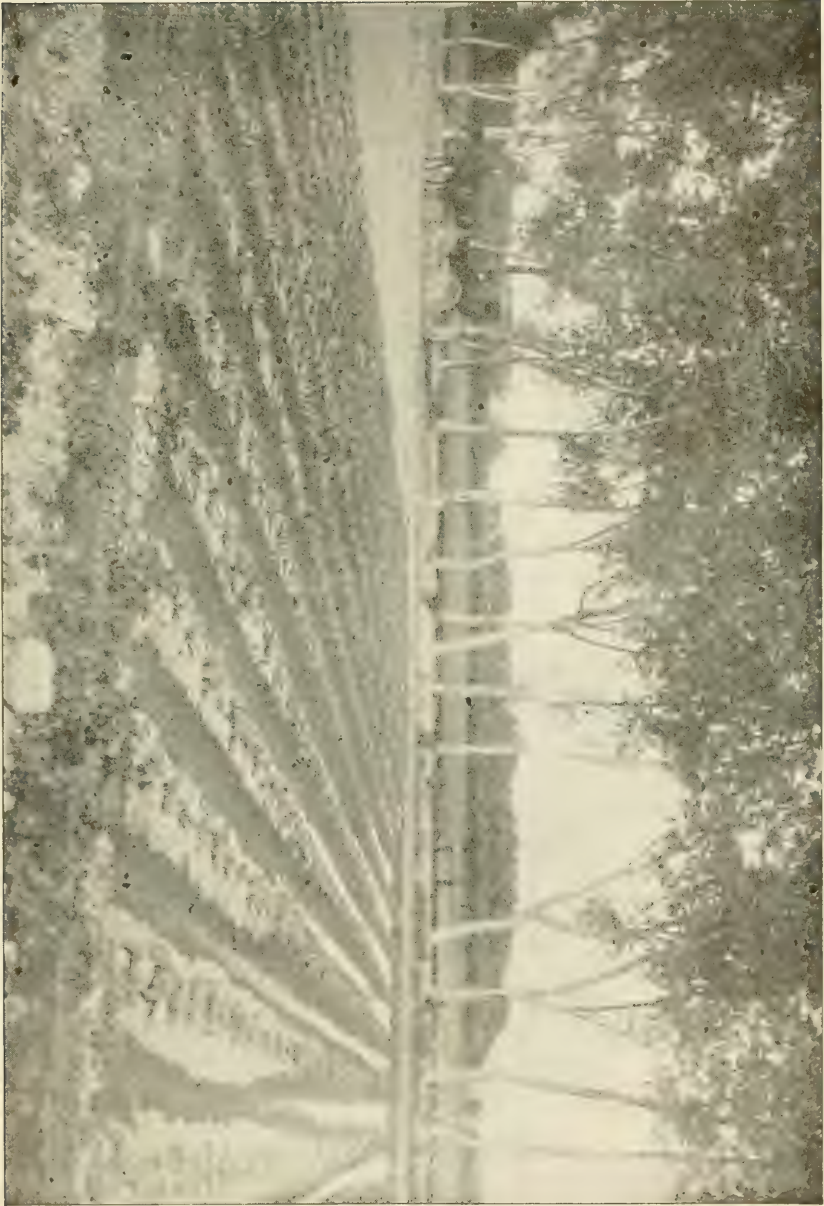


FIG. 4.—FERRIS METHOD OF IRRIGATING.
From U. S. Dept. Agriculture, Bulletin 25.



FIG. 5. IRRIGATING CANAL, CIPPOLETTI WEIR, JORDAN AND SALT LAKE CITY, UTAH.
From U. S. Dept. Agriculture, Bulletin 73.

SOLAR WAX-EXTRACTORS.

Their Proper Construction and Usefulness; why a Solar Wax-extractor should be Used in Connection with a Wax-press; Handling Slumgum; a Valuable Article.

BY R. C. AIKIN.

The solar wax-extractor has of late been somewhat discredited by the editor and others. I know they do not discard it altogether, but it is not receiving the credit which I think it should. In my practice I do not see how I could get along without a big solar, as it is a great source of revenue and a labor-saver.

I made my first solar about twenty years ago, soon after Mr. Boardman described his solar as made by him. I think it was in the columns of this journal that the first description appeared, though I am only guessing at it. I know it was a good many years ago. As nearly as I can remember, my first machine was about 2 feet by 3—long way north and south. Along in

boiling water, and in that cylinder I put the combs and proceeded to boil and turn, but the thing was nowhere near equal to the sack-and-stick method. I gave it up as a failure. After that I depended on the solar and the bag methods, occasionally resorting to some method of applying pressure to the slumgum after I had boiled and punched out all the wax I could get.

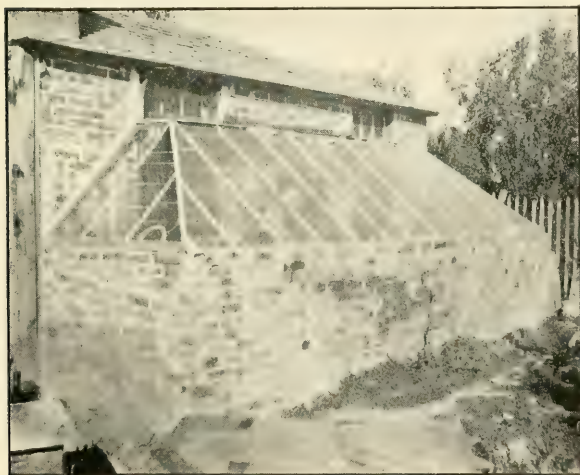
SOLAR WAX-EXTRACTORS VARIOUSLY CONSTRUCTED; THEIR FIELD OF USEFULNESS.

But now to the solar. I believe every apiarist should have one, and put his wax accumulations through that first. Since coming to Colorado I have built several solars—first a small one about 2×3 feet, a wooden box with a window-sash for the glass. The second one was a wood-glass structure, in size about 3×6 feet, a door at the back by which to load it, and a pit, or drop, at the front, and a side door where the wax cakes were removed, the structure on wheels and legs. This same machine was somewhat remodeled and changed to meet new ideas. Next was a brick-glass structure with a furnace under it, size about 4×6 feet. Later I built another brick one with a furnace under it. This, too, was 4×6 feet. All these machines were made the common fashion—long way north and south. The sash frames were for the most part of wood, but in a few instances I put in metal bars, some of iron and some of tin. Up to this 4×6 machine, original and rebuilding, I had built not less than half a dozen solars and put through them much wax—at least several thousand pounds.

But in all these efforts I found some serious faults. No matter how many legs and wheels, the things would not face the sun unless I was there to face about. The brick machines were, of course, stationary, but made with a view to getting the maximum of sunshine. The next effort was to enlarge the 4×6 and make it a 6×6, the glass roof having

three slopes or sides, south, east, and west. This was shown in half-tone in this journal two years ago, the editor photographing it himself. That same solar went through several evolutions in some of its parts, mainly in the internal arrangements. It was put against the south side of a 10×16 brick house, the loading being done through a door opening from the building into the solar. At one time the wax and honey were discharged to a pit in the center of the back (north) side, and the unloading was also done from the inside of the house, not an opening being outside.

Later I discarded the back central discharge and ran all to the front, the object being to get the honey and wax where they would be as long as possible in the sun.



AIKIN'S MAMMOTH SOLAR WAX-EXTRACTOR.

those days I also devised several steam and water extractors. The general plan of the steam machines was after the plan so commonly used in the Swiss and other machines—a perforated basket to receive the combs above a chamber or kettle of boiling water, the wax to drop into a pan and discharge through a spout at one side. The water method, or submerging process, was pretty thoroughly gone over, cheese-cloth, burlap, and other kinds of bags used. I went all through the boiling, punching, and stirring process, but every time with a feeling that all was unsatisfactory.

At one time I thought I had struck a grand idea, and proceeded to put it into practice. I made a boiler of such shape as to take a wire-cloth cylinder submerged in

After one season's use I have again made a change, returning to the center back discharge, loading and unloading from the house behind the machine. On previous page I give a half-tone view of the structure as it stands at the present time, and as it has been through this present season, and having handled about half a ton of wax this summer, and more than a ton of honey. As it now stands it is 4x16 feet, has the three-slope roof, and has the center discharge. I can still see some things that I would make differently were I doing it anew, but it is not a bad machine as it is.

First and foremost, we have always made a mistake in making our solars long way north and south. One made 4 to 6 feet long and 2 feet or less wide north and south, will get much more and continuous sun than when the length is the other way, made the old way with one south slope. It

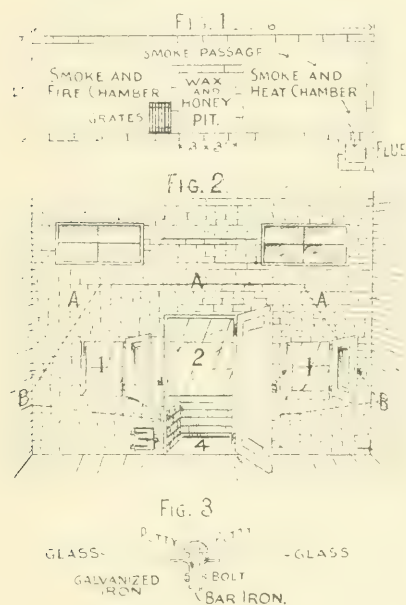
further than to say that the glass used is, for the main part, 16 inches from bar to bar, some of it 10, and some 12 inches. As for the width the other way, it is all the way from 4 to 24 inches, a lot of it being waste glass picked up at the stores. To make the glass water-tight, the pieces are butted end to end after covering the edge with white lead. The bars are made of galvanized iron and plain bar iron, the galvanized iron bent at right angles, and bolted to the bar iron with stove-bolts. See Fig. 3 in the line cut. The bar iron is about $1\frac{1}{8}$ wide and $\frac{3}{8}$ thick, for a reach of a little over 4 ft. These sash-bars should always be of metal. The extremes of wet and dry, heat and cold, will invariably loosen the putty from wooden bars, but the metal will stay putted.

The two other photos show two inside views. One is taken from the west end, and shows the east-end melting-pan, the stirring-ladle, two honey-pails set in to liquefy the contents, and the wax and honey separator and two cooling-pans, the latter described in the preceding article. The other shows the wax and honey separator and pans, and beneath them is the honey-tank that receives the honey from the separator. This view is from inside the house looking out to the south. You will notice that the separator and cooling-pans are well up in the sun, the honey-tank beneath partly in the shade; thus the separator and cooling-pans are kept hot until the sun is well down in the afternoon.

Now look at Fig. 1. This shows the ground plan. It really needs no comment, more than to say that the walls as represented are about three feet high. Fig. 2 is a view of the south wall of the brick house against which the solar is built. This view is also looking south from inside the house. 1,1 are the doors through which the melting-pans are loaded, and 2 is the door to the wax and honey pit, these doors being open, and showing the glass roof beyond. The small door at the left is the furnace-door, the smoke passing around the pit (4) and entering the flue near B. The dotted lines A A represent the glass roof on the other side of the brick wall, and the lines B B show the melting-pans, or, rather, the smoke-tight metal surface on which they rest.

The furnace feature is by no means a small item. A fire built in it in the morning will have things warmed so that, as soon as the sun gets high enough to shine on the melting-pans, the thing begins work. A little fire beneath lengthens the working hours from two to four over the sun work alone. When I want to do a big day's work I put a fire beneath. Thus it melts from both top and bottom, and I have had wax running by 9 A. M., and remain liquid until sundown.

It will be wise to give a word of warning as to the construction of the furnace parts. Build the brick walls not less than 3 feet high at the point of putting on the smoke-



is the east and west walls that cast the shadows. If one does not care to bother with the hip or three-slope roof, make the machine just one length of glass north and south, and the east and west length just as long as you wish, according to pocketbook and convenience. Also, put it against the south side of some room or house if you can. A small room may be made for the purpose, and in this keep wax, slungum, etc. Handle every thing inside, and away from the bees.

I have made some sketches and also some photos, and from these the reader will have little difficulty in understanding the plan upon which I have constructed my solar. First, look at the photo showing the whole thing, together with a portion of the building back of it. This needs no comment

tight covering. This covering I made of common black sheet iron. Boiler iron, flag-stone, or cement would be better, because the thin iron rusts out too quickly. I laid the iron on the brick in mortar, then brick

tight enough that the fire burns slowly all day. Five to ten cents' worth of coal will run it all day, and adds very materially to the quantity of work done in a day.

Right over the fire-box there will be intense heat; and to prevent the burning of wax and honey at that point, there should be a check or break—that is, a double, treble, or even quadruple floor. I accomplish this by putting in two or three extra floors above the fire-grate before putting on the final smoke-tight floor.

I would call attention to the fact that, with the length east and west, and but a very short width north and south, the sun shines in about as many hours as it would be effective were the machine faced about from time to time to front the sun; and also to the fact that, with a moderate slope to the melting-pans, there is no shadow in the top part of the pit until the sun has gotten so low as to have little melting power. Also to the fact that, when there has been a fire beneath, there is so much heat in the brick walls that the wax remains liquid as

long as the sun will continue to melt under the most favorable conditions, and this keeps the whole interior hot, and favorable to the best cooling and caking of the wax.

In operating this solar I put in a large



INSIDE VIEW OF AIKIN'S SOLAR WAX-EXTRACTOR.

Shows wax-pan in the east, and also wax and honey separator, and two cooling-pans.

and mortar on this again. This iron is made to pitch or slope toward the pit from all directions, just enough to cause any wax, water, or honey that might get in on it to run out; otherwise, when hot the wax or honey will burn and smoke.

Now I come to a part that there should be no mistake in—the arrangement of the furnace. Make the smoke and fire chamber plenty deep—don't make the mistake of getting it too low or shallow. Make the fire-box and grates as close to the ground as you can get them, and still have an ash-pit under; then have the opening into the chimney at least six or eight inches higher than the top of the furnace-door, and the smoke-tight floor over all several inches higher than the opening into the flue. If the opening into the flue be made at the same level as the furnace-door, the smoke will back out at the door every time a fire is started. You can not get the door to the furnace too much below the point at which the smoke enters the flue, and there should be no point between the flue and furnace as low as the top of the furnace-door. The smoke-tight floor between the melting-pans should be several inches above the point at which the smoke enters the flue, because then the hottest air will hold right up against the floor. This conserves the heat and saves wasting the flue unnecessarily. Arranged thus, there will be no difficulty about the draft when the fire is started; and, once heated and a slow fire kept going, it remains hot all day. After I get the fire going in the morning I put in a good supply of coal and shut tight the draft, at least



Looking south out of the house into the solar shows melting-pan, wax and honey extractor, and, beneath the separator and cooler, the honey-tank.

amount of comb, cappings, or whatever I have to put through it, then let it remain in for several days, stirring and mixing the mass from time to time so I may be in the vicinity of the solar. When considerable slumgum is accumulated, and I want to make a clean-out, I put on an extra heat by firing underneath, and stir and mix the refuse so as to get as much as possible of the wax out; then in the evening, while still warm and soft, shovel out into some receptacle to remelt in water, and put under pressure. I have no press yet, but have had a neighbor work over my slumgum in his press. The solar will not take nearly all the wax out, nor will the water-bag-punching process. A press is a necessity and a money-saver.

A WAX-PRESS, WHY NEEDED IN CONNECTION WITH A SOLAR EXTRACTOR.

You will now say, If we must have a press, why build a solar? I will tell you. There is scarcely a bit of comb, burr-comb, cappings, or whatever you want to melt, but has in it more or less honey. If you put these through the water process in either bag or press, you lose this honey. The saving in honey that can be used in feeding or in vinegar-making, and even for table use, will soon pay for several solars. It also saves time and loss in other ways, and the first run of wax that is gotten by the solar is brighter and nicer than can be had by the wet process. One who has never used a solar will have little idea how much honey can be accumulated by means of the solar—just that much saved. The slumgum taken from the solar can be worked by the press later at your convenience. I will go so far as to say that, with a solar of ample room, I can get almost as much wax out of old combs as by the steam and water methods where no press is used.

As to the proper construction of a press, I wish to make this suggestion. The whole press and bag of slumgum should be submerged in water. I am so thoroughly convinced of this that, when I have a press made, I want it so constructed. I want the wax all floated above and away from the press, and, being submerged in boiling water, every bit of wax released will leave the cheese and press; and, too, there will be no need of great haste to get the pressing done before it is too cold to work. To accomplish more perfect extraction, the screw may be released as often as you choose, and thus the water enters the cheese and will bring away more wax when again pressed. These thoughts are in part theory, but worthy of consideration. I know a bee-keeper who is remodeling a heavy and expensive press that he may get the whole submerged in hot water, and he has done quite a little experimenting with this wax problem.

Right here I wish to make the prediction that, in certain fields and under certain conditions, wax will be no mean part of the product of the apiary. I find it is possible

to pay a very large part of the expenses of running an apiary out of the wax sales. Like many others I have found that we have been throwing away money in slumgum, and that in other ways wax is wasted in great quantities.

Later.—Since writing the above I have read the discussion at Buffalo on this subject, and observe that the prevailing opinion favored a *submerged* press. This coincides with my views on the matter. However, I have never used the press yet, but speak partly from theory. R. C. A.

[Although this article is long, it is good in proportion to its length. I myself believe, and have so stated, that the solar wax-extractor has its place. I believe that nearly all refuse, so far as possible, should be put through it first, because the wax that the sun renders out is of a superior quality. But the slumgum from the solar and old combs should be put through the wax-press. A bee-keeper who thinks he can get along without a press of some kind is probably throwing away gold dollars by the handful.* All refuse from the sun machines should be by all means saved.]

The question whether steam or hot water should be used in connection with a press is an open one. So far we are inclined to favor steam. The objection to hot water is that it takes up so much bulk that there is little room for wax. A steam-machine of a given capacity need be only a third as big as one for hot water of the same output of wax.—Ed.]



A BIG HONEY YIELD IN CALIFORNIA.

We are just advised by J. B. Radcliffe, of Helix, San Diego Co., that he took 19,000 lbs. of honey from 50 colonies, spring count, last season. Mr. Radcliffe's word is above questioning, and we offer this as a news item for GLEANINGS, and as an evidence of the fact that "you can't keep a good State down." ARTHUR E. RAZE.

Los Angeles, Cal., Jan. 14.

[This is large—very large; and were it not for the "off" years California would far outstrip any other locality in the world, and it comes near doing so as it is.—Ed.]

THE RAMBLER IN CUBA.

Friend Ernest:—We have just had a visit from Rambler, and enjoyed it very much. The first day we went back to the mountains over pretty poor cow-paths. It took

* A Hatch-Gemmill press is something that almost any one can make for himself for three or four dollars, and there is no excuse why one should not have one, because it will pay for itself in short order. For description, see GLEANINGS, page 279, April 1, 1901.

all day, but his cyclometer showed only 35 miles.

The next day we went out to some pretty little lakes and looked at the alligators—about 40 miles—but some good road among it.

The third day we proposed to go to the south coast, and (would you believe it?) he said that, if it was just the same to us he would go out and see Mr. Moe first, and take the trip some other day.

I have read all the Rambles as they came out in GLEANINGS and some way got the impression that the author loved to ramble around; but I find that he prefers to take his rambling in smaller doses.

Jan. 1st GLEANINGS just came. A man who will use the same wire to prod into different colonies for foul brood is not a competent inspector, and ought to be removed.

HARRY HOWE.

Artemisa, Cuba, W. I., Jan. 3.

SOME LARGE HONEY YIELDS; HOFFMAN FRAMES VS. NAIL-SPACED FRAMES.

I have taken 2600 lbs. of honey from my 11 colonies of bees.

I had the misfortune to lose my fine queen last August. I was very careful of her; but one day, about Aug. 6, she disappeared, and I noticed new queen-cells started. She was not in the hive, and I could not find her on the ground. I clip all my queens. This colony did not make any attempt to swarm or to supersede her. I lost three of my best queens the same way this year. Several of my colonies gave me 275 and 300 lbs. of honey; but this one gave me, up to Aug. 11, 377 lbs.; and if they had kept their queen they would have given me over 500 lbs. of honey, as they had given me, at the time of the loss of my queen about 165 lbs. more than any of my other ten colonies.

I see on page 929 that Dr. Miller prefers wire nails to staples or spacers. I do not think there could be a worse thing attached to a frame, to catch in the pocket of the extractor, unless it would be a hook. Give me the Hoffman frame in preference to any of them.

H. E. J.

San Marcia, New Mex., Dec. 10.

HONEY STATISTICS.

As I was asked to write an article on bees or bee-keeping for one of our newspapers, could you kindly give me some figures as to how much honey the United States exports, and how much do two or three of our largest States produce? Who is the largest bee-keeper, and how many members has the National Bee-Keepers' Association?

W. E. HEAD.

Paris Station, N. Y., Dec. 5.

[There are no data as to the number of pounds of honey and beeswax exported from the United States, and I can, therefore, give you no information. In a good year California might produce 200 cars of

honey, Colorado somewhere about 40 cars, and Arizona 20 or 30. New York is another good State, but probably does not produce all told to exceed 100 cars. But the honey is not exported from New York, it being consumed largely in the county where it is raised.

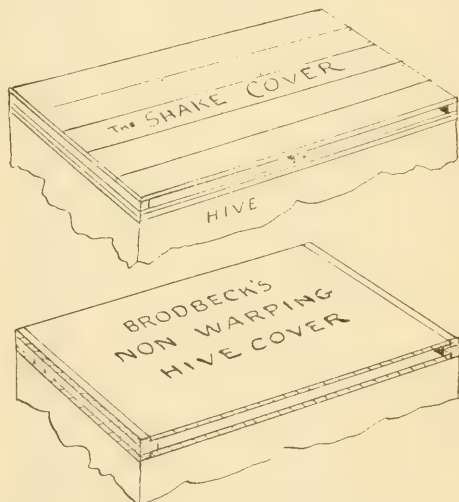
There are something like a thousand members of the National Bee-keepers' Association. You could get the exact number by writing to General Manager Eugene Secor, Forest City, Iowa.

The estimate of the number of pounds of honey produced in the United States is somewhere about as follows: For comb honey, 50 million pounds; for extracted, about 125 million, or a total money value of from eight to ten millions of dollars.

Capt. J. E. Hetherington, of Cherry Valley, N. Y., and W. L. Coggs shall, are the two most extensive bee-keepers in the United States. The former is credited with owning 3000 colonies, and the latter about 2500.]

BRODBECK'S DOUBLE VENTILATED HIVE-COVER.

I can fully indorse the hive-cover that Rambler illustrated in GLEANINGS for March 15, page 232, of last year. I had been requested a number of times to present it to the public, but wished to give it a thorough trial before doing so, and now after five years' use in my apiary I prefer it to any other combination of hive-cover



and shade-board in use. I advise the use of a single board for each side, for the lapping or grooving together of two pieces in the center will result in warping in spite of all nailing, etc. I prime all boards thoroughly on the under side before I nail them up, and have one here now to be exhibited at our State meeting, which has been in use five years, and seemingly as good now as the day it was nailed up.

GEO. W. BRODBECK.

Los Angeles, Cal., Jan. 10.

HOME-MADE WAX AND HONEY EXTRACTORS.

1. Please tell me how to make a solar wax-extractor—that is, give size and style which you most prefer for about 25 colonies, and what kind of glass to use. Will window glass do?

2. Do you think it would pay me to make my own honey-extractor—that is, to buy the gearing and all that is needed, and get a tinner to make the can? My tinner offers to make the can out of galvanized zinc for twelve cents a pound when finished. Do you think I had better do that or buy one already made? What kind would you recommend for me?

3. Do you think sweet clover would grow here in Southern Indiana, about 20 miles north of Evansville?

4. What do you think about this country for a bee business? Do you think it as good as where you are, or as good as most of the States? I kept bees for about three years. Last year was the only one I got any honey to amount to any thing, which was about 32 lbs. per colony. How much do you generally average? How many colonies do you keep? H. F. BUCK.

Buckskin, Ind., Jan. 10.

[Dr. Miller replies:]

1. The essential thing in a solar wax-extractor is to have an arrangement that will let the sun's rays in, and at the same time will not let the heated air escape; and along with that a chance for the melted wax to separate from the debris. Take a box covered in any way you choose with glass; put in that a dish to hold the melted wax, and over that a dish of wire cloth or perforated metal to hold the combs to be melted, and you have a solar wax-extractor. Common window glass will do all right. The size required for 25 colonies might vary considerably. Some would have much more wax to melt than others. Probably an extractor with a glass surface of one square foot would answer, although one of larger size would cost not much more and would be more satisfactory. Use tin for the dish, and wood for the box. Let the glass be half an inch or an inch above the top of the tin dish. Two thicknesses of glass half an inch or more apart would be better than a single thickness, but I doubt if it would be worth while. It is quite possible, however, that, if you have much wax to extract, it might be economy to get one of the new steam-extractors.

2. I suspect it would be a little more satisfactory to get the whole thing ready made. The tinner may make it all right; but when it is finished, if something proves to be out of whack, there you are. The ready made is sure to be all right. A novice extractor would do all right for 25 colonies, but it isn't at all certain that you may not go considerably beyond that, in which case a two-frame Cowan would be much better.

3. I don't know whether any grows in

your locality, but I don't believe there's a township in Indiana where sweet clover will not grow vigorously.

4. Probably your locality is as good as and possibly much better than my own. Taking bad and good years together, the average here is somewhere between 30 and 40 lbs. per colony. I have at present 235 colonies.



If thy brother trespass against thee, rebuke him; and if he repent, forgive him. And if he trespass against thee seven times in a day, and seven times in a day turn again to thee, saying, I repent, thou shalt forgive him.—LUKE 17: 3, 4.

In considering these two verses I wish to confine my talk to one point—to that phrase in the third verse which says, “If he repent,” and the same point in the next verse. We can forgive people for injury done us, even if they do *not* repent; and I suppose that is the right and proper thing to do—the Christianlike way of doing in the majority of cases. But perhaps we might consider the real definition of that word *for-give*. A great many times even good Christian people will say, “I will forgive, but I can not forget.” Now, in one sense we should both forgive and forget. We should not cherish malice nor hold a grudge. But in another sense it is not *right* nor *Christianlike* to forget. There has been much said in the papers of late in regard to the “pardoning business” in the criminal courts in Cleveland. The mayor, and director of charities, Rev. H. R. Cooley, have been doing an unusual amount of pardoning people and letting them go after they were arrested and found guilty of crime. I will not stop here to discuss which side is right and which is wrong. Perhaps I may say, however, that a good many have been let go when the good of the community demanded they should have been kept in the workhouse or behind prison bars. In discussing the matter, the point that came up strongly was, “Is this man you have pardoned in for his first offense, or is he an old offender?” If the latter, it makes quite a difference; and it is perfectly right and proper that the police and criminal courts should not forget that the man in question has been up for a similar offense before. Sometimes, perhaps in only a few cases, a man was not only an old offender, but he went back to his old trick of picking pockets and the like just as soon as he was let loose. His repentance was only *pretended*—no repentance about it.

When an offender is truly penitent he should most assuredly apologize, even if he does nothing more. Where one does not apologize, but just goes right on without considering, or paying any attention to the

fact that he has wronged an innocent party, it is a question, as I look at it, whether he should be *either* forgiven or forgotten.

A few months ago we were having a big fight with the brewers and saloon-keepers. They were determined the canteen should remain in the army. They got men high in office to back them up. The newspapers of our land, especially the great dailies, a great part of them, gave place to the most ridiculous false statements in regard to the effect of depriving (?) soldiers of their beer. In fact, the thing got a going to such an extent that good Christian people—yes, and some *ministers of the gospel*—believed these ridiculous and unreasonable falsehoods to be facts. They said it seemed, from careful reports from good authority, that the canteen was a *temperance* measure; and then they quoted what the papers said. The Prohibition party, the Anti-saloon League, the W. C. T. U., and other temperance organizations, invested both time and money to sift these statements to the bottom. They came out promptly with facts that could not be disputed. They then asked these great dailies, and other papers that have given place to strings of falsehoods in regard to the matter, to please correct, giving them any quantity of facts, and letters from the proper officials, demonstrating beyond dispute that the newspaper statements were falsehoods, oftentimes made out of whole cloth, put out by those interested in pushing the liquor-trade. Most of you know how it turned out. Very few indeed of the newspapers gave place to a correction and refutation of these pernicious lies. Sometimes in some obscure corner they put in a very brief note to the effect that the disasters consequent on abolishing the canteen were not so bad after all. Not one of them, that I know of, unless it was a religious paper, apologized for having unwittingly defended the brewers, or expressed any regret whatever, that they had been entrapped into serving the prince of darkness. After General Miles came out with his sweeping declaration, the subject seemed to be dropped; and, by the way, it seems to me we temperance people have not thanked God as we ought to have done for a man in authority, like General Miles, to come forward at such an opportune moment. If I have not said it before, let me say it here, *may God be praised* for General Miles; and may all good men and women stand by him. The matter seems to have been dropped pretty generally; but I for one do not feel like dropping it just yet. I fear the disgraceful and shameful example set by these great dailies is going to establish a sort of precedent. Yes, it has already started a fashion of wronging innocent men or an innocent class of people, and then refusing to retract or recall the wrong statement. I once heard a story of an editor who, by mistake, gave an account of a man's death. The man came into the office considerably stirred up. He stood before the editor, and pointed to the

passage. The editor said, "Well, what of it?"

"You said I was dead. Now you know I am *not* dead; you see me standing here before you. I want you to retract and apologize."

The editor very mildly replied:

"No, my friend, we can not say that we were mistaken. An *editor* never makes a mistake. We will do this, however: We will say you have come to life again; that we have seen you, and know it to be true."

Of course, this was sarcasm; but it is a fashion among periodicals and even home papers that ought to be rebuked. I suppose most of you see already what I am driving at. By a mistake or blunder somewhere—yes, a stupid, senseless blunder—almost every periodical, big and little, thought it a fine thing to dish before their readers the fact that comb honey is now in this new century really made in large factories, out of glucose and paraffine. Permit me to say right here the bee-keepers of our land have done nobly in protecting their industry from the damaging scandal. One editor said, in a sort of pleasantry, that he did not know there were so many bee-keepers on the face of the earth. Another thing, he did not know what a pugnacious, vindictive set of people they were, before. This editor had been a little backward about retracting, and I presume likely his patrons who were producing honey more or less almost snowed him under with protests. He said he would have to buy a bigger waste-paper basket if the thing kept on; but he finally came out with a pretty good apology. Of course, this story is old, and has been popping up a good many times. It makes one think of the seven times a day mentioned in our text, and it is right we should forgive and forget; but, as I see it, *before* we do this the editor of the paper needs to make at least some feeble attempt to undo his wrong. Does anybody ask *what* wrong? During the holidays, when comb honey has usually a large sale, a large dealer in Cleveland, who had a ton or more of honey from us, wrote that, for some reason he could not explain, the sales of honey had suddenly dropped, and that at a time of the year when it is very unusual. This dealer had not probably noticed the scandalous statements in the papers. I do not know whether our bee-keeping friends, in writing to these stubborn and contrary editors, told them they could not consent to bring into their homes a periodical that would refuse to correct an injustice and injury, whether done ignorantly and carelessly or not. But I *do* advise that, when a mild letter to the editor of your home paper fails to stir him up to a sense of justice, you should tell him in plain black and white that he must be fair or you do not want his paper. I think the moral tone of the press the world over would be greatly improved if the editors got more such letters. Dictating to an editor that he should agree with you on politics,

finance, or religion, is, of course, another thing; but when you have given him abundant proof that he is wronging an innocent class of people, and he refuses even to try to undo the wrong, then with draw your patronage and support. Our text says, "If he repent, forgive him," even though he should ask to be forgiven seven times in one day.

Now, there is another aspect of this matter that not only vexes me but it perplexes me. When the canteen falsehoods were up we could readily understand the editors had some personal interest in the matter, because a great many of them love strong drink. Perhaps I am mistaken in saying this. God knows how gladly I would retract and apologize if I could be convinced of my mistake. No doubt many of them had feelings on the subject. They felt hostile and bitter toward us temperance people who were continually trying to curtail their "liberty" as they expressed it. There was some *sense* and some *reason* in their refusing to retract and apologize. But how about the bogus comb honey? I suppose a good many papers gave place to the story because people are always interested in being told that this, that, and the other thing is manufactured. The subject of artificial hen's eggs bobs up every little while, and lots of good people whom you would think ought to have some brains in the place where brains are supposed to be, believe it is true! I have never yet heard that anybody believed strawberries are manufactured; but I do not know but it will come next strawberry time. Well, these editors gave place to the comb-honey scare because everybody would lift up their hands and say, "Did you ever!" The father of the family would read the newspaper in silence, until he came to the part about bogus honey; but such a morsel of scandal as that must be read aloud to the whole family, and then the good mother would remark, "Well, I thought that last honey we had tasted a little queer, and it looked too white and handsome to be genuine honey. I guess we will not buy any more."

Let me tell you a little story about how foolish gossip may harm even a market-gardener. When the Stratagem peas first came out I bought quite a lot of the new mammoth pea in order to astonish our patrons pleasantly. The first day they were put on the wagon they made quite a sensation, and there were not enough to go round. Pretty soon somebody started the story that these great peas were the result of using night-soil in our market garden; and I was told that one Medina *doctor* said people had better not use them, as they might convey contagion. Now, the truth was, we had not used a particle of night-soil on our grounds that year, and never used any of any account. I told the men on the wagon to contradict the story and explain to the people that it was a new variety, larger than any thing we had ever had before; and I thought of having them carry along

a catalog to show our customers a picture and description of the new pea. We should all be exceedingly careful about passing along any piece of news, especially where it is likely to damage innocent hard-working people. Perhaps I might say right here one newspaper was so stubborn, after being repeatedly corrected, the editor still insisted there were large factories where comb honey was produced, and that, in his opinion, The A. I. Root Co. was probably making more of it than anybody else. He said our reward card was simply a bluff to hide our real business and work. After his attention was called to the fact that he was liable to fine and imprisonment, he promised to make a retraction; but he would not do it till his friends and fellow-townsmen had urged him to desist from the folly of the course he was taking. By the way, if any of you hear such stories as this, you might tell people our establishment is always open to investigation; there is no locked-up room on the premises, and never has been. Every thing we make and all we handle is open to the inspection of anybody who is curious, providing he will go to the office, make himself known, and get a permit to go through the works.

Of course, I am not thinking of personal matters in talking about forgiving and forgetting. If anybody wrongs me individually, and I can not persuade him to make it right, I would, as a rule, call it "spilled milk" and let it drop. But where community at large is being injured, that is another matter. If a man cheats you in a deal, you can forgive it and let it go and treat him pleasantly; but if he is engaged in making counterfeit money you would be guilty *yourself* if you let him go on by failing to report him to the officers of the law. I have never yet been to law with a neighbor on account of some personal deal; but where a man persists in slandering our whole industry, I would not only fine and imprison him, but I would send him to jail even though he were poor and needy, unless he retracted and made amends for the mischief he had done. Jesus said, "I came not to bring peace but a sword;" and that sword, as I understand it, means that he would uphold the law and punish crime. Again he said, "Think not that I am come to destroy the law or the prophets."



We take the following from *Agricultural Experiments*, published at Minneapolis. As I understand it, the work was done by the editor of the periodical:

In the latter part of January, 1901, we sowed several kinds of seeds in a small window-box, simply to test their vitality. The lot included two varieties of tomatoes, Acme and Dwarf Champion. When from one to two inches high, the young plants were transplant-

ed; and when averaging eight or nine inches in height, we decided to give them the better accommodation of a hot-bed, then just ready for them. Each plant was placed in the center of a quart-sized strawberry-box; the boxes were closely packed in order in the frame, and enough dirt put in to cover them to the depth of fully two inches. When the plants were too high for the frame, we placed another 12-inch board on top, and our memorandum shows that, by April 29, the foliage was pressing against the glass, and the first blossoms were in evidence. The plants had also been allowed considerable fresh air on warm days, to harden them for the next and final change.

The transplanting to the open ground occurred about May 10, into a sheltered spot on the south side of a barn. The setting was quite deep, in some cases covering six or eight inches of the stalks. No pruning was done at that time, nor were the plants trained or tied up at any time thereafter, excepting as necessary to keep them off the ground. About 65 plants made up the collection, and they had been held back as much as possible in their growth up to this time. But from this time on we did all we could to hasten their development.

Every night for two or three weeks the plants were carefully covered, each one having a gunny sack drawn down over it, supported on stakes. Later in the season, in caring for more than a thousand plants before danger from frost was past, we found other methods of protection, simpler and more effective. Now for results.

I find these entries in my diary:

June 27.—Picked the first ripe tomato.

July 1.—Took six pounds of choice tomatoes to the city.

July 11.—To day Yerxa paid me \$2.25 for 18 pounds of tomatoes; very smooth and handsome.

Further items of this kind might be taken from my cash-book, but I think I have given sufficient proof that early tomatoes can be grown in this latitude in the open ground, if started properly. Comparing this record with the published report of experiments with 56 varieties tested in one season at the New Hampshire State Experiment Station, I find reason to call my first products "early." Their record of first pickings is as follows:

From one kind, July 8; from three varieties, July 16; one the 18th; ten the 24th; one the 27th; seven the 29th. The first fruits of 23 kinds came in July, and of 33 varieties from Aug. 1 to 21. Average date for the entire lot, August 2.

In my unprofessional experiment I have established a record which I expect to beat in the future.

The above is not a difficult thing to do, as I have demonstrated again and again, by starting tomatoes in the greenhouse. The price of the early tomatoes is always enough to pay handsomely for all time and trouble. And this is not all. If you are located near the road where you can show good strong thrifty tomato-plants growing in quart boxes, you can sell almost any quantity at from 5 to 10 cents each. Where they have blossoms on, or, better still, small fruit, there is no trouble in getting 10 cents for a plant, box and all. The Dwarf Champion is an excellent tomato for this purpose. But the new plant called Earliest in the World will give you tomatoes quicker, and the plant blossoms when so small that it is an excellent one to go in boxes. Now is the time to sow your seeds if you want to try your hand at it.

FLOWERS THAT DO NOT FADE.

I have been having much enjoyment lately in that little greenhouse, and I want you to share part of it in something I am going to tell you about. A vase of flowers, even if it is only a very small vase and a few little blossoms, adds much to the charm of the breakfast-table—yes, the dinner-table and the supper-table too. But it is something

of a task for the good wife to keep such a vase bright and fresh; and in the winter time it is not always easy to find the "posies." Now, I will tell you what you are to do. Get a rather deep sauce-plate—a square one if you can find it. Fill it with some sort of white sand—silver sand, for instance; or, if you can not do any better, get a piece of soft white sandstone and pound it up. I got mine by the side of the railroad track. It ran out of the sand-box of the locomotive. It is almost as white as sugar. Now, having wet this sand so it is about like mud, fill it with cuttings. In the corners I would put some sprigs of lycopodium, for instance; a little further back put some California moss, or what florists call mesembryanthemum; then put in some sprigs of geranium, pelargonium, salvia, etc. I have mentioned salvia because it (especially the golden leaf) grows so rapidly from cuttings. Get a sprig of bloom for the center if you can; then take slips from any sort of house-plants. Ivy geranium takes hold beautifully. Of course, coleus is prettier than almost any thing else; but your dining-room must be very warm if you want it to thrive. Select slips from almost any sort of plant with a bud on, and they will blossom in the sand just about as well. Now all you have to do is to keep the sand wet. You all know about starting geranium and other plants in a bottle of water. Well, this is on the same principle. But a bottle is unsightly any way you can manage it. A tiny dish of white sand kept wet will not only keep blooms of almost any kind better than any vase, but most plants will start and grow. Your greatest difficulty will be that the air of your living-room may be too dry. To obviate this, you want a glass vase, or any kind of glass dish or cover, to set over your little cutting-bed (only at meal time) to hold the dampness. With a little ingenuity you can manage it so as to have a bouquet of flowers and beautiful sprigs of foliage that will be growing all winter long.

When your plants have roots half an inch long, put them in little pots and you will soon get to be a florist on a small scale. You can get sprigs and cuttings from any other kind of house-plant. If there are no house-plants in your home, go visiting to your neighbors who have them.

I forgot to say that *Impatiens sultani* is one of the very prettiest plants for this method of propagation. It needs, however, like the coleus, to be in a room that is rather warm, say 50 to 60 at night, and 65 to 70 in the daytime. Now, bear in mind if you should at any time let the sand get dry, your cuttings, or at least most of them, will "go dead."

S. W. Pike, of St. Charles, Ill., will furnish you rooted cuttings of all the plants I have mentioned, and ever so many more, for 2 to 5 cts. each; lower prices still by the dozen. All who are interested in house-plants had better send for his little catalog of rooted cuttings.

THE "RED-ALBUMEN" SWINDLE.

This thing that has been having the run of the papers has been finally traced to the notorious "Bain," of Zanesville, O. Not only have the poultry-men been swindled, but the druggists as well. The article sold as red albumen at 50 to 75 cts. per lb. is really worth only 3 or 4 cts.; and its worth for making "hens lay" is just nothing at all. If you have a friendly interest in your druggist, tell him he had better let the stuff alone, even if everybody is inquiring about it and wanting it. Somebody is going to "get left" with a stock of it on hand.

COLD-WAVE FORECASTS AND THE WEATHER BUREAU.

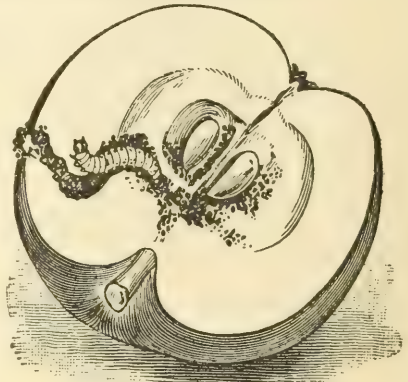
Some of our readers may have noticed that on Friday, Jan. 24, the Weather Bureau said a cold wave would reach us by Sunday or Sunday night. This, you will notice, was a forecasting three days ahead. Well, Saturday night came, and Sunday and Sunday night, with no cold wave in sight. A good many began to ridicule the Weather Bureau. But by Monday morning there had been a fall of 35° in 12 hours. The explanation was that a warm wave swept in from an unexpected quarter, and crowded the cold wave back. Sunday afternoon, however, I received a telegram that the cold wave would be on hand Monday morning sure; and it is here yet, Jan. 31. The only trouble in this case was that the forecast was driven back so that it was from 30 to 36 hours late.

BERT COOK, PRESIDENT OF THE MICHIGAN STATE ASSOCIATION OF FARMERS' CLUBS.

For several years I have been wondering why Bert Cook, son of Prof. A. J. Cook, had not been pulled forward a little more into public life—something like the life of his father, for instance, during the early and middle part of his life in Michigan; hence I was greatly pleased to find in the *Michigan Farmer* for Jan. 18 a most excellent picture of Bert Cook, or A. B. Cook, as they call him, with the notice that he had been chosen President of the State Association of Farmers' Clubs. I know something of young Cook's ability, from having met him many times at his father's home; and I do know, too, that his lamented mother was a jewel among women. With such a parentage it has seemed almost wrong to me that young Cook should continue hiding his light under a bushel, even if he does enjoy himself more alone out on the farm than anywhere else. When he gets to be sixty or more, we will try to excuse him, and let him go off, even into the big back woods of his beautiful State, if he feels like it. Just now, however, we want him in the front, where he can do his native State such a service as his excellent training and parentage have so eminently fitted him for.

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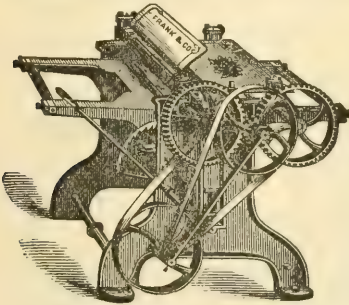
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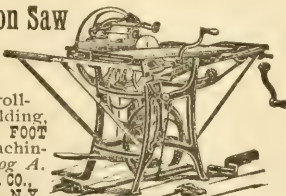
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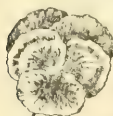
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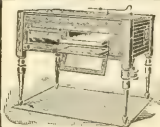


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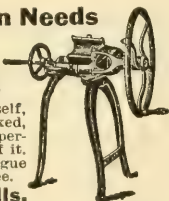
New design, open hopper, enlarged table, new device to control feed. You can set it to suit any strength. Never clogs. Sent on **TEN DAYS FREE TRIAL.** No money asked for until you prove - or guarantee on your own premises, that our new model will cut any kind of bone with adhering meat and gristle, faster and easier and in better shape than any other type of bone cutter. If you don't like it, send it back at our expense. Free Cat'g explains all. **F. W. MANN & CO., Box 37, Milford, Mass.** Manufacturers of Clover Cutters, Granite Crystal Grit. Corn Shellers, etc.



Every Chicken Man Needs
a green bone cutter.

The Adam

alone is ball bearing, it cleans itself, it cannot become clogged or choked, it is fed at the pleasure of the operator. You will want to know of it. Send for our Illustrated Catalogue No. 39, before you buy. Sent Free. **W. J. ADAM, Joliet, Ills.**



Bushels of Eggs

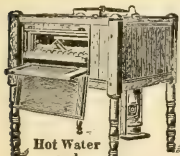
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of brains, experience and high grade material has made the **RELIABLE Incubator**

known throughout the civilized world. If you are after results represented in dollars and cents, you want one of our popular 20th Century Poultry Books. Bright, instructive and worth ten times the price asked. Sent for 10c. As full of meat as an egg. **Reliable Incubator & Brooder Co., Box 8-49 Quincy, Ills.**



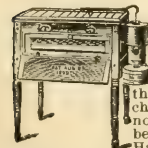
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From imported and home-bred mothers, by up-to-date methods. Tested, \$2.00. Untested, \$1.00; six, \$5.00; twelve, \$9.00. Full colony, \$6.00; three-frame, \$2.00; two-frame, \$2.50; add the price of queen. Discount on large orders.

Write for circular.

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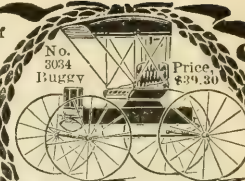


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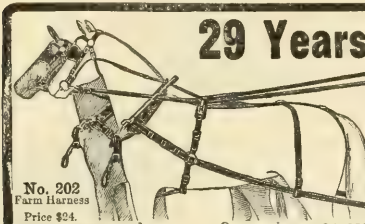
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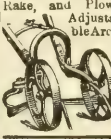
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Straight rows at uniform and perfectly regular depth and distance apart.



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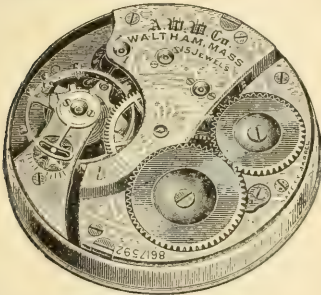
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The movement is nickel with 15 jewels, settings, exposed pallets, cut expansion balance, patent breguet hairspring, hardened and tempered in form, patent micrometric regulator, tempered steel safety barrel, exposed winding wheels, polished and red gilded center wheel and jewel settings.

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by makers to wear 20 years or will be replaced free. With this case you will have a watch equal to any in appearance and a guaranteed timekeeper.

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through, and is not plated in any way. We use it because many people want a first-class movement but do not care for an extra fine case. Just the thing for everyday use as it is heavy with thick crystal to protect the works. Our supply of these is limited, so do not wait too long. Compare our prices with retailers and see the saving. Remember that these are the popular 16-size thin model and much handier than old style 18-size.

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COMB HONEY.

When in need of comb honey let us supply you, as we have a large stock to select from. Our stock of extracted is very low, and we shall be pleased to get samples and prices from those having choice extracted for sale.

BEESWAX WANTED.

Our very large reserve stock of beeswax is vanishing rapidly in foundation orders being filled at the rate of two or three tons a week. We are, therefore, in need of more beeswax; and until further notice we will pay 27 cents cash, 29 in trade, for average wax delivered here. Send on your wax if you have any ready to ship.

MAPLE SUGAR AND SYRUP.

Those in need of maple sugar will do well to sample the lot we have to offer. It is very nice and cheap when you consider the scant stock to be had in the country. Price 10c per lb. in small lots; 9c by the barrel. We have also secured a nice lot of syrup, which we can furnish at \$1.00 per gallon, in five-gallon lots or over.

Special Notices by A. I. Root.

We have just printed for Flansburgh & Peirson, Leslie, Mich., their annual catalog of strawberry, raspberry, and blackberry plants, and potatoes. All interested in the very best that is raised in this line should send for this catalog. Their specialty this year is the Uncle Jim strawberry and the King of Michigan potato. As we are now out of the strawberry-plant business we would refer our friends to the above firm.

GRAND RAPIDS LETTUCE-PLANTS, ETC.

For immediate orders we can furnish nice transplanted plants at 30 cts. per 100; \$2.50 per 1000. If wanted by mail, add 10 cts. extra per 100. Seedling plants, before they have been transplanted, half the above prices, and postage one-half. Any customer for either seeds or plants may have "a small punnet" of Eugene Davis' "Gilt Edge" Grand Rapids seed free if he will just mention it. This should be used for growing seed.

SEED POTATOES STILL SMALLER THAN THE SECONDS.

Besides the seconds at \$2.00 a barrel, mentioned in our last issue, we have a limited amount of thirds of Bliss Triumph, Early Ohio, Bovee, Sir Walter, New Russet, and Craig. Those who wish to risk these for seed can have them, while the supply lasts, for, 1/2 peck, 10 cts.; peck, 15; 1/2 bushel, 25. They will grow all right, and with a longer season on good ground they will make a fair crop of good size. Of course, it takes them longer to get started. These potatoes are about the size of hickorynuts, some of them a little larger.

THE A B C OF STRAWBERRY CULTURE, NEW EDITION, REVISED AND GREATLY ENLARGED.

This is just now off the press. The first edition was published in 1890. Part 2 is a review of the progress made in the past 12 years, from 1890 to 1902, with sketches of strawberry culture in different localities all over our country. Part 1 is mainly by T. B. Terry; part 2 by A. I. Root. There are 235 pages, all together in the new edition, and 31 illustrations. The price has been advanced to 45 cts.; by mail, 50, in leatherette and gold; bound in cloth, 68 cts.; by mail, 75. We think the book is well worth the money to anybody who grows strawberries, even on a small scale. There has been one pleasing thing about all of these books by Terry; and that is, the demand for them has been much greater after being before the public for eight or ten years than when first published.

OUR BOOK ON MAPLE-SUGAR MAKING.

As it has been some years since this book was written by Prof. Cook, I recently submitted it to Prof.

Chamberlain, of Hudson, O. (as he is an expert in making maple syrup), to see if the book needed revision or an appendix to bring it up to date. After having given the book a careful examination, and sending for circulars from all those who furnish implements, pans, spiles, etc., for the industry, he replies as follows:

Hudson, Ohio, Jan. 25.
MR. A. I. ROOT: I had no expense, except a little postage in writing for circulars, which the circulars are worth more than the postage to me, for they show me I am up to date in my own methods, and that Prof. Cook's excellent little book is really and essentially up to date too.

W. I. CHAMBERLAIN.

I preferred to get the opinion of some one well posted in regard to the book, as we did not wish to furnish our patrons with a book or any thing else out of date; and just now is the season of the year for you to get the book to study it up, even if you have but little to do with making maple syrup or maple sugar. Price of the book, 25 cts.; by mail, 30 cts.

ANEROID BAROMETERS.

Some of our friends will remember I have had trouble in getting aneroid barometers that could be sent by mail without injury. One trouble was that I could not find where these barometers were made. I have now succeeded, however, in getting most beautiful and accurate instruments direct from the manufacturers. One is made in the old country, and the other one here in America. I am testing them carefully to see which is the better. Both instruments are so substantially made that I think they can be safely sent by mail—at least our experiments in the matter so far are a success. Best of all, by buying at headquarters I can keep the old price, \$2.50 each, if sent by mail, 20 cts. more for postage and packing. Where you can have them sent by express, however, with other goods, I believe I would advise so doing. I have for some time had two of these instruments hanging up beside my mercurial barometer, and they agree most beautifully. The aneroid, however, is rather more sensitive to changes than the old mercurial. For myself, while I am engaged in any kind of outdoor work I would almost as soon be without a clock as a barometer. Printed directions accompany each instrument.

OUR GARDEN SEEDS.

When we first started in the seed business I undertook to grow a large part of the seeds we offered for sale. This I found to be impracticable. Our trade did not require enough to make a great business of seed-growing. I found I could get seeds not only cheaper, but oftentimes better, by buying them of somebody who made a specialty, as H. A. March does with cabbage and cauliflower, or Clark with corn. Therefore we have been getting more and more into a way of having our seeds grown for us by experts, each in his separate line of seeds. This year more of our seeds are grown especially for us than ever before. Our onion seed and many other seeds are grown in California. We agreed to take a certain amount at a specified price before the seed was planted to grow the crop. We thus know we have absolutely fresh seed and nothing else—that is, knowing the man or firm that does the growing. Our tests in the greenhouse have shown better germination than ever before. Even the onion seed that I offered at half price on page 36—seed that is a year old—germinates almost as well as fresh seed. Another thing, where the seed is grown especially for the seedsman it is next to impossible that the seed should not be true to name. We shall be glad to mail our seed catalog for 1902 on application.

THE NEW HAND POTATO-PLANTER.

I have used the hand potato-planter long enough to give it a fair trial, but I can't say that I like it. It goes too slowly. In fact, I prefer to plant almost any other way. I have used a horse planter, but prefer to mark out the ground, drop by hand, and cover with horse. H. A. SIMON.

Warren, O., Jan. 8.

The Acme potato-planter was a grand success with me. I planted on ground that was not furrowed, and it planted too deep; so I tied a one-inch block under the lever, and it was all right. I planted some on tough sod, and it did the work all right. I let one of my neighbors take it to use, and he said he would like to get one like it. I would not do without it for four times its cost. M. WYRICK.

Cascade, Ia., Jan. 7.

The new potato-planter is a success with me. I have only a large garden, and have the soil worked deep, and finely pulverized, rolled level, and planted under a line. My plot is high and dry, and in so doing the moisture is retained by level working, not being ridged at all. I think some soils may not have enough sand, and the planter may not clean itself; but I find that, if we use reason, we can soon work

the tool to perfection. I also use it to plant corn. I am well pleased with the planter. S. S. FEIHEROLF.
Era, O., Jan. 8.

We sold over 200 of these planters last season; and, notwithstanding my invitation, only three people as above have made any reply. My impression is that friend Simon did not get the hang of the tool or else he is too old a man to learn new tricks—no disrespect meant by this. If he had given it to a good stout boy, and the boy had faith enough to follow his instructions, his verdict might have been more like that of the other two friends. I am glad to tell our customers that, by having a very large lot of these planters made up during the dull season, we can, this year, make the low price of 60 cts. each; three or more, 55 cts. each; half a dozen or more, an even 50 cts. A descriptive circular will be sent on application.

TO NEW JERSEY BEE-KEEPERS

Several of our progressive States have one or two bee-keepers' associations, and New Jersey should be able to place one to her credit with several hundred active bee-men. If time was ever opportune for an association, with a membership of several hundred, that time is now. The New Jersey Bee-keepers' Association was organized January 11, 1902. The next regular meeting will take place Saturday, March 1, at office of Mr. J. H. M. Cook, 62 Cortland Street, New York. Every bee keeper is cordially invited to be present. It does not matter whether you own half a dozen colonies of bees or a hundred dozen, you are welcome to join us in a cause that you know is worthy of advancement. From present indications the regular annual meeting of our association will be held at Trenton this fall, during the State Fair, at which place almost every person in our State who is interested in rural pursuits is generally found.

Cranford, N. J.

GEO. N. WANSER, Sec.

Wants and Exchange.

WANTED.—The sediment and slumgum from wax-extractors; also the propolis and scrapings of sections, hives, and brood-frames. Correspondence solicited. State what you have. Address C. H. LAKE, American Art and Specialty Co., 314 Cortland Street, Baltimore, Md.

WANTED.—A competent person to take charge of a comb-honey apiary.
CHEEK & WALLINGER, Las Animas, Colo.

WANTED.—To exchange gents' solid-gold watch, fine movement, and 22 rifle, for nuclei and queens; also 300 to 500 copies of GLEANINGS. Make me an offer on them. I want 200 colonies of bees cheap for cash in April.

BERT W. HOPFER, La Junta, Colo., R. F. D.

WANTED.—Apiary and small farm. Would buy or rent. Want good fruit and potato land, and sweet clover and fall bloom.

R. S. BECKETT, New Buffalo, Mich.

WANTED.—To buy raw furs for cash, especially skunk, opossum, raccoon, lynx, red and gray fox, mink, otter, and muskrat. Write for price list.

ELMER BROS., Bergen, N. Y.

WANTED.—To buy, rent, or engage in the bee business somewhere in California where there is a good chance for good schools. Twelve years' experience.

M. R. BLISS, Davis, Illinois

WANTED.—To buy 300 to 800 colonies bees in Colorado alfalfa and sweet-clover district. Write, with price.

C. H. WEEKS, West Groton, N. Y.

WANTED.—To buy one or more large apiaries at a cash bargain in good location where honey is of best quality, and not liable to crop failures. Write full description and price. Address

Box 581, Los Angeles, Cal.

WANTED.—To contract with Northern growers to furnish early garden plants to be shipped by express February to May. Onions, \$1.00 per 1000; other plants, \$2.00 to \$3.00 per 1000; can furnish onions in 100,000 lots. If preferred, will grow from seeds you furnish. I grow best early varieties.

ALBERT WITTENMYER, Ormond, Volusia Co., Fla.

WANTED.—Young man to assist in apiary of 250 colonies. State age and experience. No liquor or tobacco. Commence work March 1st. Address
M. P. RHOADS, Las Animas, Col.

WANTED.—To exchange for bee supplies or any thing I can use, one Monarch 600-egg incubator, and two Des Moines outdoor brooders, capacity 200 chicks each. All in good condition. Or will sell cheap for cash.
F. A. GRAY, Redwood Falls, Minn.

WANTED.—To sell or exchange two Excelsior incubators (260-egg capacity), one 150 chick brooder, and bee hives—any style, for well bred B. P. Rocks, W. Wyandottes, L. Brahmas, M. B. turkeys, Pekin ducks, Belgian hares, or offers.

H. R. MILLER, Fulton, Mo.

WANTED.—To exchange second-hand Barnes foot-power circular saw for a No. 15 Cowan rapid extractor, or offers.

E. E. LAWRENCE, Stanberry, Mo.

WANTED.—To exchange Barnes machine for bees, or incubator and brooder.

G. F. TUBBS, Annin Creek, Pa.

WANTED.—A young man of good habits as an assistant in my apiaries. Will start a man at \$20 a month and board. Steady employment and increased salary will be given on approved efficiency.

GLEN E. MOE,

Prov. Pinar del Rio, Candelaria, Cuba, W. I.

WANTED.—To sell at \$1.00 each, or exchange for beeswax or supplies, good healthy Belgian hares. Pedigreed stock, higher priced. No "snuffles" or other disease. Have never had a complaint from a single buyer yet. Satisfaction guaranteed.

RALPH B. DALY, Route 3, Lockport, N. Y.

WANTED.—To buy an apiary in Colorado, Michigan, or any good locality.

B. F. HOWARD, Binghamton, N. Y.

WANTED.—A competent man to take charge of my farm and apiary. Address

JOHN IFFT, Zellenople, Pa.

WANTED.—To exchange for cash or wax, one No. 25 Cowan extractor, 100 R-11 honey-boards, and 1901 make of Daisy foundation-fasteners. Bargains. Write to
M. H. HUNT & SON, Bell Branch, Mich.

WANTED.—To exchange 60-lb. cans, perfectly bright and good as new, 25c each, f. o. b. here, for honey or wax.
G. L. BUCHANAN, Holliday's Cove, W. Va.

WANTED.—To buy a second-hand saw-mill, heavy (top and bottom saw). 216 Court St., Reading, Pa.

WANTED.—A buyer for my 80-acre tract of land in Crawford Co., Mo., at \$10.00 per acre, one-half cash; balance on time payment. Address

LOUIS WERNER, Edwardsville, Ills.

WANTED.—To sell or exchange gasoline-engines for all purposes—stationary, marine, bicycle, etc.; want machinery of all kinds.

Robert B. Gedye, LaSalle, Ill.

WANTED.—To sell Rocky Ford cantaloupe seed. Seed of these famous melons postpaid, 40 cts. per pound. Choice selected stock.

H. F. HAGEN, Rocky Ford, Colorado.

WANTED.—To exchange Dadant uncapping-cans, Root's No. 5 extractor, and other supplies, for honey or wax.

O. H. HYATT, Shenandoah, Iowa.

WANTED.—To know who has 200 colonies of bees to sell cheap; also what young man would like to serve an apprenticeship with Quirin the queen-breeder.

H. G. QUTRIN, Parkertown, O.

WANTED.—To sell improved comb foundation. Send 10c for sample, by mail.

H. VOGELER, New Castle, Cal.

WANTED.—To exchange, 6-in. foundation-mill, and 140-egg Star incubator, for wax, bees, or cash.

I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Extracted honey. Kindly quote prices.
MYERS BROS., 234 Spruce St., Hannibal, Mo.

Now Ready!

Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,
Wetumpka, Elmore Co., Ala.

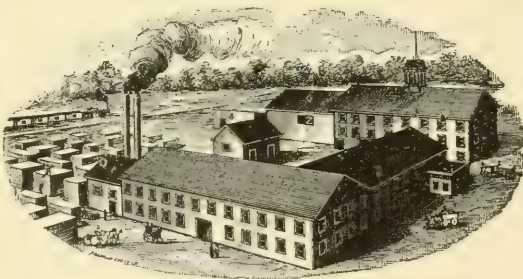
QUEENS!

Friends, we are again preparing for queen-rearing on a large scale for 1902. We are headquarters for queens and nuclei in large quantities as well as for small lots.

Visalia, Cal., Sept. 19, 1901.
I want 24 queens just like those I got of you four years ago. I think that they were called Honey-gatherers. WM. B. PARR.

We can begin mailing early queens by Feb. 15. Prices: Tested, \$1.50 each; \$8.00 for six; \$15.00 per dozen. Untested, February, March, April, and May, \$1.00 each; \$5.00 for six; \$9.00 per dozen. Fine breeders, \$5.00 each. Send for our catalog, free by mail; tells how to rear queens, and how to keep bees for profit.

The Jennie Atchley Co.,
Beeville, Bee Co., Texas.



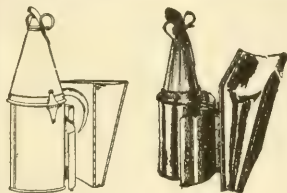
Kretchmer Mfg. Co., Red Oak, Ia.

BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of the Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

— AGENCIES —

Trester Supply Co., 103 So. 11th St., Lincoln, Nebraska; C. C. Richards, 1223 17th St., Denver, Col.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1-1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

SAN FRANCISCO.—No change in prices since last quoted. The Association of San Francisco Commission Houses set the price—buying and selling—of honey, in consequence there is no advance in price to the producer, though wheat, hay, and all other crops have advanced in price, owing to the unusually dry winter. Clear and cold throughout the State at this date. Rainfall to date less than any year in past 30 years. Prospects poor for honey crop, and good for higher prices.
E. H. SCHAEFFLE, Murphys, Calif.

Jan. 29

CHICAGO.—Hope of February bringing a good demand for honey, is so far disappointing. The weather is extremely cold, yet this should not curtail the demand, for honey is a cold-weather luxury, and to most people more inviting when cold than when it is hot. Perhaps one of the causes (for there are many) was the holding back of the crop by producers in the early autumn, on the supposition that the yield was light, taking the country as a whole; the result was that consumers reasoned that it was going to be scarce and substituted other things in lieu thereof. Comb is freely offered, with prices weak at 14¢@15 for choice to fancy; No. 1, 13¢@14; amber and buckwheat, 11¢@12. Beeswax strong at 29.

R. A. BURNETT & Co.,

Feb. 7, 1902, 190 South Water St., Chicago, Ill.

SCHENECTADY.—There is only a moderate demand for comb honey, and most of that is for buckwheat, with some to offer. Extracted moving off fairly well, supply of dark quite limited. No change of note in prices of comb or extracted.

CHAS. McCULLOCH,

Feb. 8, 1902, 1 Eagle St., Schenectady, N. Y.

BOSTON.—There is a good stock of honey on this market, but should the demand keep up at its present rate we shall all be consumed before warm weather. We are not advising further shipments of comb at the present time. We quote fancy 1 lb. cartons, 15; A No. 1, 14½; No. 1, 14; practically no No. 2 being offered. Extracted light amber, 7½¢@8; amber, 7; Florida honey, 6¢@7½.

BLAKE, SCOTT & LEE.

Feb. 8, 31, 33 Commercial St., Boston, Mass.

NEW YORK.—There has been very little movement of late in comb honey, and while there is no buckwheat on the market to amount to anything, there is sufficient quantity of the different grades of white honey. The demand having been slow of late, prices have had a downward tendency and are likely to remain so during the spring. We quote fancy white, 14; and exceptionally fine stock at perhaps 15; No. 1, 13; amber, 11¢@12. Extracted remains dull at unchanged prices. Arrivals of late are quite plentiful of all the different grades. Beeswax firm at 28¢@29.

Feb. 8, HILDRETH & SEGELKEN.

CINCINNATI.—The honey market has been rather dull this year. Comb honey is selling fairly, and brings the following: White clover, 15; lower grades, 12½¢@14. Extracted sells very slowly, the lower grades bring 5¢@6; fancy, 6½¢@7½. Beeswax, 28¢@30.

C. H. W. WEBER,

Feb. 7, 2146 Central Ave., Cincinnati, Ohio.

MILWAUKEE.—The honey market is rather slow just now. It seems that the cold weather has a cooling effect on trade. Offerings and supply of extracted are good. Fancy comb is what is needed here, and we encourage shipments. We quote fancy 1-lb. sections 15¢@16; A No. 1, 14¢@15; No. 1, 13¢@14; amber, nominal 12¢@14. Extracted, in bbls., kegs, or cans, white, 8½¢@9; amber, 5½¢@7½. Beeswax, 26¢@28.

A. V. BISHOP & Co.

Feb. 8, 119 Buffalo St., Milwaukee, Wis.

BUFFALO.—Fancy white comb, 15¢@16; A No. 1, 14¢@15; No. 1, 13¢@14; No. 2, 12¢@13; No. 3, 11¢@12; dark, 10¢@12. Extracted white, 6½¢@7; dark, 5¢@5½. Yellow beeswax, 28¢@30; dark, 23¢@24. There is not much honey in our market. Demand is fair.

Feb. 8, W. C. TOWNSEND.

DETROIT.—Fancy white comb honey, 14¢@15; No. 1 white, 14; dark and amber, 11¢@13; extracted, white, 7¢@7½; dark and amber, 6¢@6½. Beeswax, 27¢@28.

M. H. HUNT & SON, Bell Branch, Mich.

NEW YORK.—Stock of comb honey on the market is almost cleaned up, and demand good for this time of the year. Comb honey will bring the following prices: Fancy 1-lb. clover, 15¢@16; A No. 1 1-lb. clover, 14¢@15; No. 1, 3¢@14; No. 2, 11¢@12; fancy buckwheat, 11¢@12; No. 1 buckwheat, 10¢@11; No. 2 buckwheat, 9¢@10. Extracted-honey market dull. Fancy white, 6¢@7; light amber, 6¢@6½; amber and buckwheat, 5½¢@6. Beeswax, 28¢@30.

CHAS. ISRAEL & LEE,

Feb. 10, 486-490 Canal St., New York City.

FOR SALE.—Four 10-gallon kegs white extracted honey, clover and basswood mixed, now candied, price 7½¢ cts. per lb. f. o. b. here. Also four 10-gallon kegs and five 5-gallon jacketed cans of fine amber honey just extracted, fine flavor and doubly ripened, very thick and waxy, 6½¢ cts. per lb. Large sample free.

O. H. TOWNSEND, Otsego, Mich.

WANTED.—Comb honey in any quantity. Please advise what you have to offer.
EVANS & TURNER,
Town St., Cor. 4th, Columbus, Ohio.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.
SEAVEY & FLARSHHEIM,
1318-1324 Union Avenue, Kansas City, Mo.

FOR SALE.—Fancy and No. 1 comb honey; about 2000 lbs. or more.
WM. MORRIS, Las Animas, Col.

FOR SALE. Extracted honey, from alfalfa, at 7¢ per pound. Send for sample.
D. S. JENKINS, Las Animas, Col.

FOR SALE.—Clover and sweet-clover extracted honey at 7¢, in kegs and cans.
DR. C. L. PARKER
Sta. A, R. F. D., Syracuse, N. Y.

Satisfied Customers,

and their numerous expressions of the superiority of my queens warrant me in continuing the arrangement of my queen apiaries in 1902 as in 1901. I have watched carefully, and have selected the queens whose colonies gave me the best results in HONEY, for my queen and drone mothers.

Yard No. 1 consists of a combination of the **Root Long-Tongued Clover Stock**, the **Superior Stock** so much Advertised by Hutchinson, and a **Selection of My Own Stock** that I have been Breeding for years, in regard to which I have the following:

Buffalo, N. Y., Aug. 31, 1901.

My Dear Victor:—Queen and nucleus arrived safely yesterday; made entrance to nucleus and allowed them to fly yesterday. Transferred them to a Dovetailed hive this morning, *without smoke, and handled them, patting them on the back*, and I never saw such quiet and docile bees. If their working qualities are as superior as their handling, I am prepared to say you have the best bees I have ever met with, which would include some 25 or 30 different breeders, and all the well-known races.

Yours very truly,

OREL L. HERSHISER.

The colony of one of the queens I have selected for a breeder in this yard gathered right about 400 pounds of honey last season. I have not measured her bees' tongues, but they are ALL RIGHT, LONG OR SHORT.

Yard No. 2 consists of imported Italians, daughters and granddaughters. For further description see ad. later. Testimonials on application.

Yard No. 3—GOLDEN BEAUTIES or 5-banded Italians.

I am now booking orders for spring delivery; first come first served.

Untested queens: 1, \$1.00; 6, \$5.00. Select untested queens: 1, \$1.25; 6, \$6.00. Tested queens: 1, \$1.50; 6, \$8.00. Select tested queens: 1, \$2.00; 6, \$11.00. Breeders, \$3.00 to \$7.00. See circular for specifications.

ROOT'S GOODS AT ROOT'S PRICES, plus carload rate freight.

W. O. VICTOR, Queen Specialist, Wharton, Wharton Co., Texas.

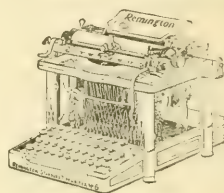
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Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

Marshfield Manufacturing Company, Marshfield, Wisconsin.

The Twenty-five Years of Experience

in the construction of writing machines, which are behind the Remington Typewriter, mean everything to the purchaser. He knows that he is getting a reliable machine when he buys a



REMINGTON

WYCKOFF, SEAMANS & BENEDICT, 137 Superior St., Cleveland, Ohio.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not needed. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making this request when ordering.

RATES OF ADVERTISING. These will be furnished on application.

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PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

Queens That Please.

J. W. Dickson, of Westminster, S. C. writes: "Send me two more queens by return mail. I prefer your bees to any that I have seen." Other beemen say equally good things of them. See ad. for Feb. 1st as to my breeders. I can serve you promptly with Doolittle's red-clover or Root's leather-colored stock. If you need early queens it will pay you to write me.

GEO. J. VANDE WOOD, Daytona, Fla.

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Retail—Wholesale—Jobbing.

Having increased my shop-room, put in power and a new set of machines, I am now producing a better article than ever, with unlimited capacity to meet orders. I use a process that produces **every essential** necessary to make it the **best and most desirable** in all respects. My **process** and **automatic machines** are my own inventions, which enable me to **sell foundation, and WORK WAX INTO FOUNDATION FOR CASH**, at prices that are the lowest. I make a specialty of working up Wholesale and Jobbing Lots of wax into foundation, for cash. If you have wax by the 10 lbs. or ton, let me hear from you. Catalog giving

FULL LINE OF SUPPLIES

with prices and samples, free upon application. **BEESWAX WANTED.**

Cus. Dittmer,
Augusta, - Wisconsin.

HONEY QUEENS!

Laws' Long-tongue Leather Queens.

Laws' Improved Golden Queens.

Laws' Holy Land Queens.

Laws' queens are the standard-bred queens of America. The largest honey-producers use them and praise them. Laws' queens go everywhere, and can furnish you a queen every month in the year. Four apiaries. Queens bred in their purity. Prices, October to April: Tested or untested, \$1.00 each; 6 for \$5.00. Breeders, none better, \$3.00 each. Address

W. H. Laws, Beeville, Texas.

I. J. Stringham, 105 Park Place, New York City.

Honey-jars.

1-pound square jars \$5 per gross; No. 25 jar, porcelain top, \$6 per gross; Nickel-cap jar, fancy, \$5.50 per gross. All are clear flint glass. Discount on quantities. We ship from New York City, N. Y. **LABELS**, 60 cents per gross. A full line of Apiarian Supplies always in stock. Catalog free. Apiaries are located at Glen Cove, Long Island, New York. : : : : :

The A. I. Root Co., Philadelphia, Pa.

10 Vine Street.

Full line of all supplies manufactured by us.
Low freight and steamship rates to all points on
Atlantic Coast. Order early, be ready for spring.

G. B. LEWIS CO., WATERTOWN, WIS.

1902 Catalog Ready.

If you have not been receiving a copy annually, send us your name and address, and one will be mailed to you free.

Special Offer.

To parties sending us an order for supplies amounting to \$10.00 or more at regular prices we will make following low rates on journals:
Gleanings in Bee Culture, semi-monthly, 1 year, 50c.
American Bee Journal, weekly, 1 year . . . 70c.

Special Agency, C. M. Scott & Co., 1004 East Washington St., Indianapolis, Indiana.

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BEE - SUPPLIES!

ROOT'S GOODS
AT
ROOT'S PRICES.

C. H. W. Weber, Cincinnati, Ohio.
2146-2148 Central Ave.

A NEW AND COMPLETE stock for 1902 now on hand. I am The Root Company's representative for Cincinnati and surrounding territories. . . You save TIME and FREIGHT CHARGES by having goods shipped from here. Convenience of railroad facilities here enables me to do so. Before buying elsewhere, write for my prices and catalog, which will be mailed you free of charge.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

ILLUSTRATED
SEMI-MONTHLY

Published by THE A. ROOT CO.
\$1.00 PER YEAR MEDINA, OHIO.

VOL. XXX.

FEB. 15, 1902.

No. 4.



MR. EDITOR, if any one should ask me whether that bee-cellar, so nicely described p. 98, is in Canada or California, what shall I tell him? [The address was left off by mistake. It should have been Tisch Mills, Wis.—ED.]

BASSWOOD for top-bars, says Niver, p. 95. Say, Niver, "in this locality" if you should put a basswood top-bar in a hive and then go fishing, when you got back you'd find that top-bar had warped and twisted clear out of the hive, and was crawling all over the bee-yard.

PROF. HARRISON, of Ontario, thinks drugs that will not cure foul brood in this country may do so in Europe, because bees there are to a greater extent immune to the disease. It is interesting to know that he reports success in disinfecting foul-broody combs with formalin. [I do not understand why European bees should be more immune to disease than American.—ED.]

THROUGH THE kind offices of my good friend M. Bertrand, Editor *Revue Internationale*, whom I thank heartily, thorough efforts have been made to obtain seed of the new white clover, *Colossal Ladino*, but without avail. One house furnished seed which proved to be that of melilot. Another expressed the belief that an old sort, trefle de Lodi, was meant. The strong probability seems to be that *Colossal Ladino* is a colossal humbug. [See Pickings.—ED.]

OUR FOREIGN FRIENDS are still having a time with American long-tongued bees. *Leipziger Bztg.* is quoted in *Le Progres Apicole* as mentioning \$400 American queens. That's up. ["Behold, how great a matter a little fire kindleth!" A while ago our European cousins were talking about our selling \$200 queens by the dozens; and now they have got them up to \$400 apiece! Some of those translators of American exchanges would do well to study

English a little more. Or perhaps they misunderstood the equivalent of our money.—ED.]

IRRIGATION talk in last number reminds me of my little nephew. He had never been outside of Colorado till he came to Maren-go, and when he saw so many trees here he asked, "Who irrigates all these trees?" [I do not wonder that a boy who was brought up in Colorado should ask such a question. And yet, after all, is there any class of people in the world who are more observing or fuller of questions than sons of their dads? Whenever I take my son out to see the world, he sees things I never thought of noting, and asks questions—well, just like all boys.—ED.]

G. M. DOOLITTLE, in *Review*, speaks of "giving the combs that watery appearance peculiar to most of the imported Italian stock." I have had a number of imported Italian queens, and I have not observed that peculiarity with any of them. The question is, whether my experience or that of friend Doolittle is exceptional. [Our experience has been much like Dr. Miller's. The leather-colored strains, especially the imported, would cap their honey whiter than the average of the yellow bees, although I will acknowledge that Mr. Doolittle once showed me some very white honey that his five-banded bees produced.—ED.]

THERE'S FOUL BROOD in your mouth, according to Dr. A. W. Smyth, in the *Irish Bee Journal*. He says: "Woodhead states on the authority of Vignal that the *Bacillus alvei* is an inhabitant of the human mouth—that great home of the bacteria where Leuwenhoek first discovered them." If that is true, it is worth while to look out about where our saliva goes when working with bees. [This is possibly true. Something over twenty years ago, when I was spending so much time with a microscope, I found there was a large variety of bacteria in my own mouth. If we only knew what foul places our mouths are, and if we could see some of the forms of microscopic life that grow there, we could not doubt that it might be a favorable place for the lodgment of certain disease germs.—ED.]

DO HENS eat bees? Dr. Sonder answers in *Centralblatt*, "Yes and no." He had an apiary in which hens had free run, and they never touched a living worker. He had another apiary in which the hens gobbled workers as fast as they settled. In the latter case the hens were closely confined, with little chance to get worms or insect food. [Some years ago we had evidence from a number of our subscribers, showing that chickens, when they once learn the trick, will gobble up workers in a wholesale fashion; but as a general thing they will not touch them, so I think Dr. Sonder's "yes and no" is strictly correct.—ED.]

RAUSCHENFELS thinks that on one trip a bee visits from 50 to 1000 flowers. One bee made 640 visits before he lost sight of it. So says *Le Progres Apicole*. [Rauschenfels must be exceedingly agile and nimble of feet, and of quick eye, to keep track of one bee long enough for it to make 640 visits. I have tried it in clover-fields; but after one had visited about half a dozen heads it would strike clear off across the field, just as we used to do when we went berrying. We would pick a little here, and then conclude it was better picking over across the field, and so we would move to the other point. It must have been exceedingly "good picking" for that one bee to have made 640 visits to enable one man to keep his eye on it all the time.—ED.]

NO WORSE THING than a wire nail for spacer to catch in the pocket of the extractor, says H. E. J.; p. 111. Just exactly what I thought till I tried it, and then I found it worked exactly as if no wire nail were there. The wire cloth in my extractor has 9 meshes to the inch. But say, H. E. J., even if it wouldn't work for extracting, you hardly ought to deny so good a thing to those of us who don't care about extracting. [Somewhere on my last trip, I can not just remember where nor when, serious objection was made to the use of nails on extracting-combs for spacers just because they did interfere in practice, as well as in theory, with putting in and removing from the extracting-pockets; so it seems the objection—at least with some—is more than theoretical.—ED.]

REFERRING to Stenog's comments, p. 93, I may say that I think R. Hamlyn-Harris has for some time been in Germany, and so, like most of the Germans, his entire horizon is filled by Dzierzon. Judging from the German bee-journals, I should suppose that the greater part of German bee-keepers idolize Dzierzon, and don't know that such a man as Langstroth ever lived. American bee-keepers even up matters by ignoring the fact that Dzierzon invented movable combs (not frames) without having heard of Langstroth's invention and that it is to Dzierzon and not to Langstroth that German bee-keepers owe most. Intelligence is not all on one side—nor ignorance. [This, it seems to me, is a very fair state-

ment, giving full credit both to Dzierzon and to Langstroth. But did Dzierzon really invent movable combs? and was it not Langstroth, beyond all doubt, who gave us the first practical movable frames?—ED.]

G. THIBAUT says in *L'Apiculteur* that, although Prof. Gillett's experiments showed that drone comb was heavier than an equal volume of worker comb, new verifications upon hundreds of combs have shown him that drone comb is only $\frac{23}{100}$ as heavy as worker. [This new figure of later investigation seems a little strange. A few years ago, when we were making some measurements and experiments in this matter, we found that drone comb, as a rule, for a given amount of surface and cubic capacity, was heavier than worker—very much heavier; and when Prof. Gillette, later on, fully confirmed our results, it seemed to us the question was settled. Our readers will remember that we showed cross-sections of worker and drone combs, and that the cell walls of the former were very much more delicate than the latter. Perhaps it is a question of locality.—ED.]

A COLORADO sun-proof and rain-proof cover, described by M. A. Gill, in *Review*, is covered with a heavy coat of oxide of zinc and lead paint; upon this paint, while still fresh, is laid *thin* unbleached muslin, and immediately a heavy coat of the same paint is laid on the muslin, and another coat when dry. [I asked Mr. Calvert to figure on the cost of Neponset paper and unbleached muslin for hive-covers. After figuring a little he surprised me by saying the muslin cost only about half as much. My impression is that I should prefer it, even if it were twice as expensive as paper, because, treated as Mr. Gill recommends, it would certainly be very durable. If the paint be first applied to the cover, then cloth be laid upon it while the paint is green, it forms a bond of union with the wood. Now, then, if he covers it with another coat on the outside, it is rendered impervious to water, and stiff and hard. I suggest that the readers of GLEANINGS test paper and muslin side by side. Let us see which will stand the most "grief" in different localities.—ED.]

AN INEXPENSIVE apifuge (is it as good as inexpensive?) is given in *Revue Int.* Take 2 parts vaseline to 1 of naphthaline. Melt the vaseline with mild heat, then mix in the finely powdered naphthaline. The writer says he rubbed his hands with the mixture, and visited 28 colonies without getting a sting, while the bees attacked furiously a veiled and gloved assistant. [The recipe for apifuge may be all right; but I tried the article put out by Mr. Grimshaw, of England, some twelve years ago. If the hands were bathed in the liquid, and moved cautiously up to the bees, they would retreat to a certain extent. But I found it was entirely ineffective in the case of a sudden onslaught from one or a dozen bees. It is this kind of attack that nothing

will ward off, and the ones we have to fear. The hovering or flying bees will very seldom sting. It is the bee or two that stand up high on their legs, twist nervously this way and that, and finally make a sudden dart—zip-ker-whiz-z-z-ping—that will sting any thing in sight—rush into a smoker when the smoker is red-hot—yes, and try to sting the barrel itself, and finally writhe in agony on the hot metal before it will give up. No, I would not give much for any preparation in the way of apifuge as a preventive of stings to the bare hands when such bees are on the war-path.—Ed.]

“DRUNKENNESS is far more common in the United Kingdom than it is in the United States, and all the difference, apparently, is due to the difference in the consumption of beer alone. Can we argue, then, as is sometimes done, that beer is a promoter of sobriety?”—*Chicago Record-Herald*. [The very fact that beer contains a comparatively small percentage of alcohol makes it the most harmful alcoholic beverage known, I believe. Pure whisky or pure brandy, containing six or seven times as much alcohol, I have been told, is not nearly as harmful. The real danger from the cigarette is not because it may be drugged, but because it contains a very small quantity of light tobacco—so small an amount that the fumes of the smoke *can be inhaled in the lungs*, while the fumes of the cigar are too strong for that purpose. The effect of the cigarette is ten times more stupefying than that of a cigar, for that reason. Beer, from its small amount of alcohol, does not intoxicate unless a considerable amount is taken. It is the *quantity* that does the mischief. It is the malt liquors, of which beer and ale are the most common representatives, which are the most harmful in their general effects. Although the Filipinos used stronger alcoholic drinks up to the time of American occupation, yet when American *beer* was introduced, drunkenness increased at an appalling rate. I am ferninst all kinds of alcoholic beverages—and particularly so am I against beer, and I will vote for any measure or proposition that, in my judgment, will do the liquor business as a whole the most harm. When I know, for instance, that certain proposed legislation makes its devotees howl with rage, that is the measure that ought to pass. *They* know what will hurt every time.—Ed.]

B. P., N. Y.—The locality for bee-keeping within ten miles of San Francisco is not good; but by going into the central part of the State 60 or 100 miles southeast, along the line of the railroad, some good places are found. But they are pretty well taken up, and you could not very well get into them without buying some one out. The locality on the coast south of San Francisco, or north of it, would not be desirable. There are some good locations a little northeast of San Francisco, about 100 miles.



And perhaps the time is coming
When the losses we've sustained
Will be counted greater profit
Than the riches we have gained.

After the Straw relative to *Colossal Ladino* had gone to press we received a card from Dr. Miller telling us to withdraw it. I had just translated Mr. Bertrand's letter to Dr. Miller, wherein it was stated that the plant in question was probably a fake, and not to be found. Dr. Miller's reason for canceling his Straw was a letter from Mr. Bertrand stating that he had secured some ladino seed, and it now appears that what was thought to be a myth is at least a reality if not a benefit.

AMERICAN BEE-KEEPER.

A very important change has taken place in this journal. Instead of being published at Jamestown, N. Y., it is issued at Fort Pierce, Fla., the residence of the editor, Mr. Harry Hill. The difficulty of editing a paper at long range must be very great, and this, probably, accounts for the change. Another striking feature is the insertion of six pages of reading-matter in the Spanish language, for the benefit of Cuban readers. In the February issue will be found the beginning of the natural history of the bee, in Spanish. The Spanish seems to have been put in type by those who do not understand that language.

In speaking of the trouble that besets the market in extracted honey, W. W. McNeal says that only about a half of one per cent of our people believe that extracted honey can be obtained in a state of purity. While giving the glucose-mixer due credit for his bad work, he says one thing that ought to be remembered:

Now, bad as glucose may be, the germ that is sapping the life of trade in honey finds its abiding-place in unscrupulous methods of production. To people of taste and refinement the quality and general appearance of extracted honey in so many instances reflects on the producer such slovenly habits as to be in reality reprehensible.

The man who produces thin, unripe, unstrained, or dirty honey, and palms it off on another is just as deserving of censure as one who puts in glucose and calls it honey. The effects are the same in both cases, for both rob honey of its rightful constituents.

Referring to the comb-honey canards, and the difficulty of convincing some editors of the facts in the case, the editor well says:

There is also another class of editors with whom we have to deal—their numbers are few, let us be thankful—who assume to have personal knowledge of the existence of such spurious products, and are therefore unwilling to be instructed on the subject. We have on several occasions, when endeavoring to impart the real truth of the matter, succeeded in eliciting only the sympathy of our misinformed enemy.

BRITISH BEE JOURNAL.

John H. Hocking, in a defense of the wasp, quotes Sir John Lubbock as saying that he counted one wasp making 94 visits to some honey in one day, the honey being given for that purpose. After speaking about the ceaseless warfare wasps wage on our common flies, the writer draws this satisfactory deduction in favor of Miss Wasp:

To a nest, say 2000 workers in their daily visits are carrying some 198,000 excremented pilferers and tormentors, or, to 100 nests, in a radius of two miles, are carrying 19,800,000 a day. Think of life without this protection! This number will allow, if you please, a liberal discount without ruining the plea. We have a keen perception, and so has the saw, of what the destruction of hawks, owls, weasels, and other adjusters of the balance of power in Nature has done. Who can picture the results attending the extinction of the wasp family? Shall they not be welcome to a share of our fruits, and may not an occasional sting be borne with patience, when we remember our comparative freedom from the irritating attacks of other insects?

I am the more glad to learn this, for I have always had a liking for wasps on general grounds, they being our first paper-makers. In our old readers is a poem representing a conversation between a bee and a wasp, wherein the latter asks the bee why she is much more liked by people than she, the wasp, was. The answer was to the effect that wasps are always stinging, like fault-finders, while bees are always doing something useful. Man is learning that many of his supposed enemies, such as wasps, snakes, owls, woodpeckers, hawks, etc., are his very best friends. I believe Prof. Cook has done much in furtherance of this humane view of the case.



BEES DON'T WORK BY RULE.

"I am a beginner in bee-keeping, and have been reading all I can get hold of pertaining to bee culture. I find much of your writings in the bee-papers, and much you say seems right and good to me. Still the teachings you give do not harmonize with those given by other writers. On the contrary, they seem at times to be almost directly opposite and these other writers do not agree with each other any more than they agree with you. I have looked in vain for some one person whom I could follow with a certainty of success, and as freely as I would a teacher in arithmetic or other common branches of study. How am I to know what to do?"

"But a rule in arithmetic and a rule in bee-keeping are two different things. Twice two makes four every time, because it can not be otherwise, no matter by whom multiplied, nor at what season of the year the computation is made, nor in what locality it is done; hence we have the rule of

multiplication as being always the same. The same of addition, subtraction, etc.; but when we come to apply any rule, similar to the above, to the bees, we find it doesn't work, for the reason that every season brings its changes, and each locality has a different bearing on the subject."

"But don't you think that many beginners are puzzled in these matters, similar to what I have been?"

"I presume there may be, for I have known of even older persons in our ranks who said they could not tell just what to do from what they read; and so, if you desire, I will try to explain a little to help you out."

"That is just what I wish you to do."

"Very well. Let us take the matter of early pollen as the first. Many advise feeding corn, oat or rye meal as a substitute for pollen, early in the season, while others say such a course is useless and an absolute waste of time, trouble, and material, and that it results in the loss of numerous bees on cold and windy days, by their being enticed out of the hive when they'd better remain at home."

"Yes; that is one of the very items of disagreement which I noticed. How do you account for these different opinions?"

"The matter of location will account for this matter. The party advising the meal feed lives in a locality where pollen from the flowers is not obtainable till late in the spring, so his bees are slow in building up unless meal of some kind is fed, while the one who opposes such feeding lives in a location where pollen-bearing flowers bloom nearly if not quite as soon as the bees can fly in the spring, and the feeding of meal in such as this latter locality is, as is said, wasted."

"Would you feed meal if you lived in the location of the first?"

"Ten years ago I would have said yes, and I would do so now did I not have combs with pollen in them. Of late years I have been in the habit of setting away combs during the summer, which I found heavy with pollen, through some colony being queenless or otherwise, and keeping these to set in any colony (one in each colony) which I might find not having plenty of pollen on the first opening of the hive in spring. Such a course seems to have a better effect on the colony than feeding meal, and is nearly if not quite equal to the bees securing early pollen from the fields, and that without the loss of bees, which very often happens where pollen from the flowers is sought after in cool, cloudy, and windy days."

"But how do you keep the moths from ruining these combs? I read that there is nothing which suits the larva of the wax-moth better than combs having pollen in them."

"These combs containing pollen are placed in an upper story over a weak colony, or a strong nucleus will answer just as well, for it takes but a small colony of Ital-

ian bees to protect a score or two of combs from the ravages of the wax-moth."

"But we are digressing. Some say I should put on the sections for surplus honey early, while others say they should not be put on till after swarming. How do you reconcile this?"

Here each has a different idea in view. The first wishes to discourage increase as much as possible, while the latter wishes increase, and so says wait till after swarming, so that he may be sure of all the increase possible. All practical bee-keepers know that, while the early putting-on of sections will not entirely prevent swarming, it will check it to some extent; but more especially it tends toward swarms issuing later in the season."

"Then there are a thousand and one different ways of introducing queens, each claiming his as infallible, while the others say all are liable to fail except the particular plan advised by him. What about this?"

"This reminds me of what occurred some years ago, when, in our basswood flow, I found I could introduce queens by letting them run in at the entrance just at night, the old queen having been removed during the forenoon; and as I did not lose a single queen out of scores so tried, I set it down as a rule that queens could be thus introduced safely every time. Now, thought I, here is a common-sense rule that will apply to bees as the rule of multiplication applies to the multiplication-table; but when I came to use it after the basswood harvest was over I found it did not work with two queens out of three. This said the *season* of the year was the controlling factor in the matter. At the time I was having such success I wrote to a friend living in New Jersey, where there was no basswood, in reply to a question on this subject, how he could safely introduce queens by this plan; and although he used it at the same time of the year, he lost every one he tried, owing to his being in a different locality which gave a different honey-flow. Undoubtedly he wished that Mr. Doolittle had told him something which he could follow with a certainty of success."

"Do you think that the season and the locality was what made the difference?"

"I can only think that the reason why he failed was because all things were not in the same condition in his locality that they were in mine when I was having success; for, when there came a change in the conditions existing in my own apiary, I also failed, and I doubt if those exact conditions will ever come to my apiary again. And from these examples given, you can, I think, see why no rule regarding bee culture can be formed which will do to follow throughout the world as can the rules of arithmetic."

"This being the case, how can I or any other beginner know what to do?"

"The only thing we can do is to try the plans of others (or even our own plans) cautiously till we know they are suited to

our wants, using charity all the time, for there is a great difference in persons. Some experiment carefully, proving every thing critically, step by step, as they go, arriving at almost a definite conclusion with the first experiment; while others experiment in such a slipshod manner that their experiments at the end of several years are of little value. Yet, notwithstanding all of these drawbacks, the careful reader of the many articles on bees found in our literature of to-day will find much of value after he has sifted the chaff from the wheat. One hundred dollars per year would not hire me to cease from reading on this subject, for it is to this reading that I owe nearly all the knowledge I possess relative to bee-keeping."



I THINK we never had so much good copy on hand before as now. Some articles that we have been trying to get in the "very next issue" have been lying on the galleys for two months, and they are good articles too. We have been printing eight extra pages, and ere long will issue a double number to catch up.

IN referring to Prof. Frank Benton, in our Jan. 1st issue, page 16, I spoke of him in one place as "the entomologist." Prof. Benton has called my attention to the fact that this language might mean Dr. Howard, the head of the Division of Entomology. He explains that, at that time, he was one of the *assistant* entomologists, and the omission of the adjective might refer to his chief.

IN our April 15th issue for last year, p. 335, Mr. R. C. Aikin, of Loveland, Colo., described his non-swarming method, and then requested others to test it. It worked satisfactorily for Mr. Aikin, and in my footnote I stated that it embodied some features in a plan that I had tried with some success. Mr. Aikin wishes to know now whether any one did try it, and, if so, he would like to hear from the parties through our columns.

THE SALISBURY METHOD OF GLASSING SHIPPING-CASES.

IN our last issue, page 58, I spoke of the advantages of using small squares of glass, in place of the long large pieces, for shipping-cases. I have just learned that some of the honey that took the first prize at the Pan-American was put up in cases having the small lights and wooden buttons. To my notion, the new method of glazing comb honey gives a far better appearance than the old, and it has the advantage that one can do his own glassing from material he can get around home, almost for the asking.

JUST as we go to press I have only room to mention the appearance of the *Lone Star Apiarist*, Vol. I. No. 1, published by the Lone Star Publishing Co., Floresville, Texas, and edited by Louis Scholl. Mr. S. is one of the young men I met in Texas. He is a whole-souled good fellow, a progressive and up-to-date bee-keeper, who has got the making of a good editor. We extend our heartiest welcome, and wish them every success. The paper presents a very creditable appearance.

APICULTURE NOW RECOGNIZED BY THE UNITED STATES GOVERNMENT.

OUR readers will be pleased to know that the United States government has given apiculture an actual recognition by creating a special commission, that of Apicultural Investigator in the Department of Agriculture. The man who has been advanced to this position is Prof. Frank Benton, who formerly was Assistant Entomologist in the Division of Entomology. This position he held from 1896 to August 1, 1901, when the new commission was created.

Prof. Benton has been doing some good work in the vigorous way in which he replies to these comb-honey canards that have been published in various papers. I have taken pains to ask the editors of all papers giving circulation to these lies to write to the Department of Agriculture, adding that there was a man in the employ of the Department who made apiculture his specialty, and who could give full information, and it is evident the suggestion in some cases has been heeded.

No one can really estimate the good this new commission has done us already.

PROPORTION OF ACID TO WATER IN WAX-REFINING.

A CORRESPONDENT has stated that I said somewhere in GLEANINGS (he does not say where) that the proportion of acid to water in refining wax was anywhere from 5 to 25 per cent. I do not see what I could have been thinking about, for that is very wide of the mark. The A B C of Bee Culture (and I wrote the item) says 1 per cent, and that is about right. It is our daily practice in refining the commercial product as we buy it, to use half a gallon of raw acid to two barrels (60 gallons) of water. This would be a little less than 1 per cent of acid to water. If the wax is very dark we make a slight increase. Very light wax would require less than half a gallon. In refining commercial wax, anywhere from $\frac{1}{2}$ to $1\frac{1}{2}$ per cent of acid may be used; but in the handling of old dark combs, especially slumgum, it will be necessary to increase the amount to perhaps 2 per cent; but in that case it would be better to render the wax again in clean water so as to get out the slight traces of acid or acid smell. The $\frac{3}{4}$ or one per cent solution of acid never leaves any trace, so far as we can discover, in the wax.

THOSE BEES UNDER THE MACHINE-SHOP.

I HAVE seen bees in many different cellars; I have read a good deal about wintering; but I think I never knew what perfect indoor or cellar wintering was before. Those 250—now practically 300—colonies under the machine-shop in a compartment done off by themselves are doing finely. The cellar floor is dry; the air is sweet, and the bees can scarcely be disturbed by turning on a strong electric light. This morning I stayed in the cellar five minutes before a single bee flew out. Then one vigorous thrifty fellow struck for the light, apparently just as healthy and strong as any bee in the height of the honey-flow. True, there are some dead bees, but the number is small.

The temperature this winter has not varied as much as last, and that may have had a great deal to do with the splendid results. This morning, Feb. 11, the mercury stood exactly at 45. It goes down to 40, and up as high as 50. The weather has been snug and cold outside, and therefore it has been possible for us to control the temperature; but with good fresh air I should not expect to see many dead bees with even a temperature of 60.

THE SCRAMBLE WESTWARD; A FEW WORDS OF CAUTION; THE BEE-KEEPING HOG; BEE-KEEPING IN THE WEST.

IN my general write-ups among our friends of the craft on our southern and western borders I have tried to tell the exact truth, the bad as well as the good things. Recently I have been informed that bee-keepers are rushing into Idaho from the mere reference that I made to the fact that it is a splendid country. One man has not only located there in a locality already overstocked with bees, but has brought hundreds of colonies from the East with *foul brood*; and when upbraided by a fellow bee-keeper for his folly he simply laughed and said, "The foul brood I brought will soon clean out the fence-corner apiaries, and then I'll have room enough." I can not think of language strong enough to condemn such a—such a—well, yes, a hog as that. He would like to have all the territory to himself, even if he brings calamity upon his brother, who has a prior right to the field. I assume, of course, that, while there is one man such as I have described, there are hundreds of others who are fair and honorable.

But let me put in a word of caution. Do not rush into a field with a lot of bees until you have first written to learn something about the conditions. If you will write me I will give you the address of some beekeepers in the vicinity. Learn all you can by writing, then go yourself in person, but without bees. Look the field all over, and when you decide on your locality, go into some place where there are no bees, or buy out some one who is in the field. I should be exceedingly sorry to know that my writings result in a foolish scramble into localities already overcrowded.

Now, while I have tried to tell the bad things about some portions of the West, I wish to say that I did not see all the dark side, and therefore I can not tell about it.

While thousands of tons of honey are produced in the West, yet there are certain drawbacks. As I have before pointed out, lands that have been wonderfully productive, and where there is plenty of water, are now barren wastes. The two principal causes of this are a shortage of water, and alkali forced from the lower sub-soil up to the surface by the water of irrigation, leaving the land barren as if it had been whitewashed. Alkali kills off nearly every form of profitable vegetation; and the only things that will then grow are certain kinds of alkali weeds. In some cases sweet clover will thrive. I found hundreds of acres of this on alkali land that had been abandoned in the western part of Colorado. So bear in mind that one may locate on good land, and think he is going to make a fortune; but, lo and behold! alkali, the dread enemy of the irrigator, may come to the surface, and then all is up. I went through one town, or what had once been a town, that was literally deserted. The houses, stores—in fact, every thing in sight, including the railroad depot, was put on wheels and pulled off from the alkali stretch. You can imagine what kind of hardship such moving puts on the people.

There are some localities in Texas that have produced enormous crops of honey, but yet which are subject to drouth. Possibly they may be irrigated in time, but generally there is sufficient rain to take care of growing crops. And California, the land flowing with honey, has too many off years to be a great bonanza to the bee-keeper.

He who thinks of going west should remember that, while thousands have bettered their condition, there are very many who have sunk every dollar they had, and have gone back east, sadder and wiser men. If one happens to get into a good locality, has ordinary business sense, and is honest, he will do well. But he may locate on an alkali piece, he may get into the hands of a land shark, or he may happen to strike a locality usually productive, but sometimes visited by an awful drouth. Farmers in Kansas and Nebraska know something of what this means.

Taking it all in all, I hope my friends who follow me through my trip in the West will take the pains to write before jumping over into any locality blindly. If I can not give you the full particulars and all the facts I can refer you to some others who will tell you the truth. Many of the best locations in the United States are now already overstocked; and the bee-keeper who will go into a good location and establish an apiary right by the side of one who has been in the place for years—I do not like to say it, but he comes pretty near being a h-o-g.

LIES ABOUT MANUFACTURED HONEY; THE EFFECT OF THE RECENT BOMBARDMENT.

The continuous stream of letter-writing that bee-keepers have been keeping up in response to the requests from the editors of bee-journals is beginning to have a telling effect. The result is, that many of the best agricultural papers as well as some of the leading dailies have published the truth concerning comb honey; and so far all but three of the papers that gave space to the lies in the first place have either retracted editorially or else have published the statement from some bee-keeper, utterly refuting the nonsense that appeared in their columns. Among the papers that have finally yielded to the pressure of hundreds and perhaps thousands of letters is the Chicago *Tribune*, the paper that started these canards in the first place, and which has persistently refused to publish any thing since in the way of retraction. Thinking that a prophet is not without honor save in his own country I wrote to E. H. Schaeffle, of Murphys, Cal., asking him if he could not take a hand in helping us out. Among the first papers he tackled was this same Chicago *Tribune*. He wrote them a strong article, and they published his letter in full under a heading that it put on itself, in good strong head-lines—

"COMB HONEY IS NOT IMITATED."

And this is not all. You will no doubt remember that Commissioner Jones, of the Pure-food Commission, Chicago, was reported to have said by this same Chicago *Tribune* that there was very little pure comb honey on the market in Chicago—that it was nearly all manufactured, and that the bogus could be readily detected from the genuine by the fact that the former was white, while the latter was dark with dark circles around its eyes, so to speak. For a long time Commissioner Jones seems to have kept silent; but finally Editor Abbott, of the *Modern Farmer and Busy Bee*, wrote to him and received from Mr. Jones a letter, very emphatically stating that he had been misquoted; that he knew as well as any one that honey-comb could not be manufactured and filled with glucose. I should like to place it before our readers, but I have mislaid the copy. At all events, the whole foundation of these comb-honey lies that have been so persistently circulated is crumbling to dust. Commissioner Jones has been quoted far and wide. The Chicago *Tribune* refused to retract; but, thanks to the persistency of bee-keepers and editors (we like some glory ourselves), the lies are being nailed, and the truth is being spread broadcast.

The *National Stockman and Farmer*, at Pittsburg, Pa., a paper of wide influence, published the usual stuff about comb honey. This paper was immediately bombarded, with the result that it published a retraction; but among the bomb-throwers was

Dr. Miller; and I have just learned that the *Stockman* has published his article in full, in addition to the previous retraction.

Editor York, of the *American Bee Journal*; Editor Abbott, of the *Modern Farm and Busy Bee*; Editor Hutchinson, of the *Review*; Editor Hill, of the *American Bee-keeper*, one and all, have been taking a hand in this.

But one of the most important articles that has been so far published was one by our Mr. W. P. Root, the man who is almost constantly at my elbow. His brother is publisher of the *American Grocer*, New York, undoubtedly the leading paper of the trade, and of course goes to all the principal and progressive grocers in the country. This article, in the Feb. 6 issue, with certain illustrations supplied from this office, not only tells how comb honey is produced by the bees, but shows conclusively that it can not be manufactured. This, going as it does to all the grocery trade, just now is of immense importance, for it will enable the grocers to tell their consumers (just the people we want to reach) that comb honey is not and can not be manufactured, and why.

There are two or three papers that have not yet retracted, so far as I know. A department editor of the *Des Moines Homestead*, under the *nom de plume* of *Practical Farmer*, put out a statement some time ago to the effect that comb honey was manufactured; then when he got a bombardment from bee-keepers he modified his statement in a subsequent issue by saying that he had kept bees for twenty years; but that he had "bought both extracted and comb honey, and found both to be adulterated. . . . Comb honey is not so readily adulterated, but it is possible to do this. The bee-keeper has to help do the mixing when comb honey is adulterated; and I am not going to say how it is done." Our friend professes to know, and insinuates that bee-keepers have a part in this nefarious business. That's a slander on the business and the men in it. As to "how it is done" he has probably got the idea into his head that glucose can be fed to bees so they will store it in the comb. If any one undertakes to do a thing of that kind he will find it is exceedingly unprofitable. The fact is, *Practical Farmer* does not know what he is talking about; and I hope our readers will bombard the *Des Moines Homestead* in such a substantial way that the editor of that paper will conclude that he has got into a bees' nest. I have already written to the editor of that paper, but no attention has been paid to my letter. It is evident that the *Homestead* will have to be given a dose of letter-writing such as the *Chicago Tribune* and other papers have received of late; so, brother bee-keepers, you know what to do.

Now, no one should suppose that the battle we have been waging is won. The general public are much more ready to believe sensational lies than sober and tame truth.

The lies have found lodgment, and I venture to say that the great mass of consumers still believe that comb honey is manufactured. What we need to do is to start out on a campaign of education. That means that every bee-keeper who has a little "pull" or influence with any particular paper is requested to write a short clean-cut item about comb honey. It should be interesting as well as a simple narration of facts. When possible, put the article in typewriting. When that can not be done, if you can not write a good clear hand then get your wife or daughter or your best girl to copy your article. Let us flood the papers with facts. There is no more important work that bee-keepers can do for themselves than this, and it should be done right now.

As an illustration of what bee-keepers can do in the way of getting articles published in the papers that have not slandered the comb-honey business, I give a bright pithy paragraph from Mr. W. E. Head, in the *Utica Press*, published in Utica, N. Y., a paper of considerable influence and circulation. Mr. Head says:

ABOUT THE BEE BUSINESS.

To the Editor of the *Utica Daily Press*:

An article is going the rounds of the press that by all means should be corrected. It relates to bogus comb honey. It is a well-known fact that extracted honey is sometimes adulterated, but the National Bee-keepers' Association works hard to maintain the purity of such honey. But when some persons start the story of bogus comb honey, and furthermore state that The A. I. Root Co., of Medina, O., who are the largest manufacturers of bee-hives in the world, have been for some time manufacturing bogus comb and filling the same with glucose, I say that such is not the case, as there are no stronger workers for the bee-man's rights than E. R. and A. I. Root. When a person brings a single pound of artificial comb honey that can not be told from the genuine, then the Root company will pay that person a note of \$1,000, and I will indorse the note. If such dies were made to stamp comb, then all combs would look just alike. To the grocers of Utica who deal in comb honey I will pay \$10 for two one-pound sections of honey that look just alike. Of all the leaves on our trees, no two are alike. Let me advise those who intend going to work making counterfeit comb honey that they'd better change their dies to make \$10 bills. They would be much easier to counterfeit and a great deal easier to pass.

Paris Station, Jan. 14, 1902.

W. E. HEAD

"A COMB-HONEY FACTORY."

Mr. Head, in sending this to us, very properly remarked that "a stitch in time saves nine," and then adds that he takes pleasure in sending a photo of the *only* "factory" where comb honey is made. The picture, he says, was taken while the "workmen" were "in front of the main entrance."

It is a "factory," and no mistake. It represents a bee-hive with the bees flying around at the entrance, apparently busy at work in and out of their "factory." In the upper right-hand corner Mr. Head pastes a cut of a queen-bee, and dubs her "Mrs. Q. Bee, General Manager and President."

I wish to refer particularly to the excellent statement made by Mr. Head for the *Utica Press*. There is no immediate probability now that that paper will help pass around the usual lie.



BEE AND HONEY TRUSTS.

The Right and Wrong Kind; the Rambler is Indignant.

BY J. H. MARTIN.

Mr. Editor:—I have just received GLEANINGS for Jan. 15, and feel like making a few comments upon companies, trusts, exchanges, etc.

In the first place, I do not like it a little bit that the ideas respecting a honey company, as outlined in the last Ramble, should be classed with any little local California affair, as classed as a trust. If the plan outlined is a trust, then The A. I. Root Co. is a trust, and every combination of capital for the organization of a company to conduct business is a trust.

It seems to me to be a very simple matter for a few capitalists or even one capitalist to put money into bees and so locate and manage them as to secure a continuous honey crop.

There is one man, at least, who has risen to the higher possibilities of honey production. Since I came to Cuba I learn that Mr. W. L. Coggs shall is working on this line, having bees in New York, New Mexico, and Cuba, and is securing in a small way that continuous honey yield; or, if he is not, it is the fault of his selection of localities. It is further evident that, with good health and plenty of capital, he would greatly enlarge his business. Now, shall we write Mr. C., with his broad ideas, down as a trust, or class him alongside of that recent effort on the Pacific coast to form a honey company? or shall we class him as a sensible man with a sensible business proposition?

While we are about it, why not write down the California Citrus Fruit Exchange as a trust? that is a combination of many interests.

"Stenog" quotes approvingly, page 47, what Prof. Cook says upon that subject in the *American Bee Journal*.

I have an idea that your readers outside of California have only a vague idea about the Citrus Exchange and its success, and there is one very important point upon which Prof. Cook has failed to enlighten the public.

Let me escort you down Magnolia Avenue, Riverside, Cal. Here are orange-groves for miles. They are mostly in private holdings of five, ten, or twenty acres. Let us take the ten-acre orchard. It has been planted 20 years, and is in full bearing condition. There is a cottage almost hidden under the foliage of pepper-trees. The grounds are planted with a variety of roses and bright-hued flowers. Over the veranda

is a climbing vine. In scores of instances instead of a cottage it is a palatial residence. What do you suppose that ten acres with its cottage can be bought for? When I lived in Riverside a few years ago, \$10,000 would scarcely touch it, while in many instances the palatial residence itself cost double that amount. Now let us see who owns these groves.

Here is a house and grounds showing esthetic taste in every line. Prof. Slender resides here. He is from Boston. His health failed, and, with a good amount of capital in his pocket, he has found health and profit in a California orange-grove. His neighbor is ex-banker Strong. His wife's health led him into orange-growing. A little further down the avenue is Dr. Herrick. He lives in a palatial residence, and has large moneyed interests. Here is an ex-governor from an eastern State; many ex-congressmen, ex-senators, and, out in Glendale, is Judge Ross, with a national reputation. They are all much interested in orange-growing. They are the class of men who give backbone to the Citrus Exchange. They are the cream of the business, and professional men of the East. With their capital and business acumen they have an immense uplifting power. You would think that such men could organize a successful citrus exchange upon the first trial. But such is not the case. The Exchange of to-day has come up through various trials and failures, and even now it does not control all of the orange-growers; but there is enough to make the Exchange measurably successful.

Let us now turn to the bee-keepers' side. Here is Sam Slop. He has an apiary of 200 colonies in Esq. Jenkins' canyon. Well—well, I have said enough along that line. I will carry the comparison no further. California bee-men all know how it is. While there are many good honest men and careful bee keepers, there are no quantities with great capital behind; or if recently they have entered the field, their number is so few as to have little bearing upon the industry. There are too many Sam Slops and not enough of an uplifting power; and if the Citrus Exchange has had a hard time arriving to its present estate, with all of its moneyed influence, what can we expect from such a weak, uncertain industry and personelle as the honey business?

Now, I understand that the trust promoted by the *Pacific Bee Journal* was pronounced impractical by a competent committee because it took in all the Sams with their body, breeches, and bees, and not much working capital, and in due time Sam's share would be all experience while the cash went to the other fellow. It confined its operations to one locality, and a very uncertain one at that.

A company according to the Rambler's plan has a wide field. There is no chance for failure at all points at once. Then the Sams are all eliminated. The plan is not

even co-operation, for one capitalist can run it as his own private affair.

I was going to say something severe about some editors of bee-journals and their obscure vision about a larger bee-keeping; but perhaps the editors are all right. The time is not just ripe for such things.

Well, the Rambler is now in Cuba. Some of us have had an idea that it is a larger honey country; but even Cuba has its undesirable features. I will soon endeavor to give you an impartial glimpse of bee-keeping here.

Havana, Cuba, Jan. 27.

EXAGGERATED HONEY REPORTS.

The Editor's Position Indorsed; Nominations; the Black-Brood Situation in New York.

BY P. H. ELWOOD.

Friend Root:—I have been wanting to write you for some time to compliment you on your famous editorial on that infamous attempt to bulldoze the bee-keepers of the United States into the belief that a large crop of honey had been secured the past season. I heartily indorse all you have said in condemnation. After two years of crop failure, the attempt to wrest from the bee-keeper the slight advantage he possessed in bare markets, moderate yield, etc., was indeed infamous. The animus of their attack you unveiled so perfectly that it leaves them in an undesirable but well-merited position. They do not want the truth known. A few years ago, when an honest intelligent effort was made under the direction of Mr. Knickerbocker to gather statistics of each honey crop in time for producers' use, this same class of people were for ever howling about the unreliability of our reports. Their efforts with our members were kept up until the reports were discontinued. I think the time is now ripe to make another effort to obtain honey-crop statistics, and I have felt for a long time that the government ought to engraft them into its crop reports. Our product is of sufficient importance to warrant it, and we are well organized into a National Association. Our able manager, Mr. Secor, is well qualified to work this through, and we could not expend a part or even the whole of the money in our treasury to better advantage. We must make a united effort to maintain living prices.

In regard to making nominations for Directors before election, why not let well enough alone? Our Association is doing well; but as soon as nominations are made there will arise the suspicion that some one or some clique is trying to run it. Better put up with some minor evils or inconveniences than to have our camp divided. The black-brood disease seems to have let up somewhat the past season; but whether from the extra honey-flow or whether in the microbic warfare the death-dealing microbes have met a new enemy we can not

tell. New York is well policed for this disease; but the original investigations, commenced so auspiciously under Dr. Howard, have been discontinued on account of a lack of funds. A more short-sighted, parsimonious, and unjust policy can not be imagined. We do not know how it spreads; but the popular idea is that it is carried in infected honey. A year ago last fall one of the best bee-keepers in this or any other State fed a lot of diseased colonies on honey taken from diseased colonies broken up. A lot of brood was raised in each hive, without a trace of disease, so stated by N. D. West, State Inspector, and others. It may be a kind of yellow fever among the bees, carried by a new kind of mosquito or some other insect. Some of our neighbors saw the disease among the bees on exhibition at the Pan-American. I had not supposed it had got so far west.

Starkville, N. Y., Dec. 27.

A PLEA FOR CANDIED HONEY.

Are we Making a Mistake in Putting Out so Much Extracted Honey in Liquid Form?

BY S. T. PETTIT.

I am painfully convinced that some of us are making a mistake in saying so much about putting liquid honey upon the markets. I fear the practice, for two reasons, has a tendency to a temptation, with some, to allow a little adulteration to slip in, and more as the years go by. And then the practice means quite an additional cost to the consumer, which will react prejudicially upon our small profits.

If we all would follow the simple easy way of allowing the honey to candy, as nature intended it to do, nearly everybody would, after a certain amount of education, prefer it candied, and that would save a world of trouble and expense. A few days ago a neighbor asked me, "Can I get another ten pounds of your dark fall honey?" I said, "Yes. Do you want it liquefied?" The answer was a decided: "Oh, no! we like it better solid. It doesn't have any strong taste when it is candied."

Mr. John Yoder, of Springfield, Ont., while visiting us yesterday, told me of filling an order for a pail of honey not long ago. He took a pail of liquid honey, and the lady said, "Oh! we don't want it that way. We like it hard;" so of course he took her a pail of candied honey.

I mention just these two instances of many to show the opportunity we are neglecting to our hurt.

Years ago, when I was younger, and liked to canvass for the sale of honey, and when I enjoyed delivering my own sweet product, some of my city dealers did a large business in selling candied honey. I would furnish it in 40-lb. covered pails, made for the purpose, and the dealer would cut it out and sell it in the same manner that tub butter and lard are sold. Indeed, sometimes early in the season I would hurry up

the candying process to help their trade. But the time came when I was obliged to go more slowly, and do less; so I decided, some years ago, to sell nearly all my output to a wholesale firm. It does seem to me that we are now in a down-grade movement in this liquefying business.

I know that many good men are now engaged in the process; but I feel sure that time will tell that they are making a mistake.

Aylmer W., Ont., Can.

[I am with you in believing that we ought to push candied honey more than we do, for it is a fact that rank honey, when candied, is a little nicer eating than when in the liquid state. On the same ground we should educate consumers to the fact that extracted honey put up by a bee-keeper is always pure—that is, I think we may state that, as a rule, no bee-keeper will adulterate, so I fear nothing on that score.—ED.]

LENGTH OF TONGUES OR LENGTH OF TONGUE REACH.

Prof. Gillette's Tables of Measurements Reviewed;
Some Phases of the Question that have Not
been Considered.

BY DR. C. C. MILLER.

Interest in long tongues seems to hold its place for a good many years. In the first place it was a sort of dreamy, speculative interest, with no thought of nearly approaching realization—only the thought that it would be a great thing if by any means we could obtain bees with tongues long enough to work on red clover. That interest began a good many years ago. Then there came a special interest in the big Indian bee, *Apis dorsata*, and some were quite sanguine that the problem would be solved if said big bees were introduced. But the years have gone by, and no one has ever seen a single living specimen of the giant Indian in this country. Perhaps there would be little real gain if it could be domesticated and introduced, for, according to Prof. Gillette's measurements, we have plenty of bees already with greater tongue reach than *Apis dorsata*. His measurements, however, were upon alcoholic specimens.

Then there came something in the nature of a real boom, when measurements were made, and it was found that there was a marked difference in tongue lengths, and reports were made to the effect that some of the tongues were actually long enough to work on red clover. Now that there seems something like a lull, the question is whether the interest is to be longer sustained, or whether it shall gradually fade out entirely, as in the case of many another fad without foundation.

One thing that seems to be settled is that tongue reach is not determined by tongue length, there being no fixed relation between the two. Prof. Gillette's figures

show this clearly, in one case tongues having 40 per cent greater reach than other tongues of exactly the same length. That seems to show that, if there is to be any measuring at all, it should be measurement of reach rather than length. It is possible, also, that, better than measuring either of these, would be the plan of measuring in the live bee what it actually does reach. Still further, it is possible that, better than measuring any tongues, would be the measuring of the amount of honey stored. For it may easily be, in spite of the fact that some believe that length of tongue is a sign of greater value in other respects, that there may be such a thing as lazy bees with long tongues. Not only is this now recognized at least by some, but, like the swing of a pendulum in many another case, there seems a gravitating toward the belief that length of tongue is a thing of no value whatever.

Is this belief to be accepted as the rational one? Are all the longings of the past for tongues long enough to reach the nectar of red clover, all the testimony to the effect that tongues long enough have done work in that line, to be considered as but "the baseless fabric of a vision"? Let us not lose our common sense. So long as there is nectar beyond the reach of ordinary tongues, just so long will it be a desideratum to have tongues that will reach that nectar. Let us not go to the one extreme of thinking that, if we have tongue length, we have every thing, nor to the other extreme of thinking that we can by any possibility dispense with sufficient length of tongue if we are to have the nectar of deep-tubed honey-plants.

G. M. Doolittle has given in different bee journals details of the work of two colonies during the past summer, in which it was clearly shown that the colony with shorter tongues did very much the better work, and this seems to warrant him in concluding that there is no value in long tongues, saying, in *Amer. Bee Journal*, "And this also proves that the long-tongue fad was not only premature but a mistake as well." In coming to this decision it seems to me that Mr. Doolittle has not exercised his usual judicial level-headedness. If he had a scrub cow that gave a large yield of milk, and a Jersey cow that gave only one-sixth as much, would he feel justified in relating the case in different dairy journals, and gravely announcing that this proves that Jersey cows are not superior as milkers to cows of scrub breed?

"I am led to believe," says Mr. Doolittle (*Am. Bee Journal*, 775), "that Italian bees from various parts of the country, and from colonies that gather little or much honey, all have tongues of practically the same length." It is difficult to understand how he can believe this in face of the different measurements that have been given for months, and (I think) for years. If he will look at Prof. Gillette's table (*Amer. Bee Journal*, p. 793) in which are given tongue lengths 8 per cent greater than others, and

tongue *reaches* 46 per cent greater than others, will he say these are all "tongues of practically the same length"?

In the two colonies that Mr. Doolittle compares, the poor colony with the longer tongues had tongues not quite one per cent longer than those of the good colony. What of the tongue *reach*? This, Mr. Doolittle does not give. As variation in tongue reach in Prof. Gillette's table for Italians is nearly six times as great as variation in length, there is a *possibility* that the better bees, notwithstanding their one per cent shorter tongues, had a *reach* greater than that of the poorer bees. Indeed, the reach may have been considerably greater without presenting any thing more remarkable than appears in Prof. Gillette's table, where can be seen a tongue 2 per cent shorter than another, but with a reach 12 per cent greater, and there may be cases still more striking.

Granting, however, that the reach of the poorer colony was the greater, is it at all proven that length of tongue cut no figure in the case? The average length of Italian tongues given by Prof. Gillette is 25.47 hundredths of an inch, not quite the average of Mr. Doolittle's two colonies. It seems reasonable to believe that this is considerably above the average of Italian tongues; for, in responding to Prof. Gillette's call for tongues to measure, beekeepers would be likely to send in their best bees. So I think it not unreasonable to believe that both colonies had unusually long tongues, and one colony did poor work in spite of its long tongues. The practical question is not so much as to the comparative tongue lengths of the two colonies as this: "Would that better colony have done just as good work with shorter tongues?" In a field of red clover with the depth of tubes varying from 12 to 37 hundredths, would bees having a reach of 21.5 (Mr. Doolittle's bees *may* have had that according to the table) have no advantage over those with a reach of 15 or 16? That depends altogether upon how plentiful were the tubes measuring only 12 hundredths. If all tubes were of that depth, there never would have been any red-clover problem, and likely no long-tongue fad. But ordinarily such tubes will be very scarce, most of them being beyond a reach of 17 or 18, and so beyond ordinary reach (I think the average Italian reach given by Prof. Gillette is 17.85, which I suppose to be above the ordinary). In such fields it seems reasonable to believe that there might be a very great advantage in having tongues with a reach exceeding 18 hundredths.

As I have already intimated, it is not the part of wisdom to go wild over long tongues, and count nothing else important, and I would put more stress upon a record for storing without any measurement; yet I do believe the man is off who says length of reach is a matter of no consequence, whether it be the editor of GLEANINGS or any one else.

Marengo, Ill.

NOTES OF TRAVEL.

Prospectors for Gold; Wisconsin Bee-keepers in Arizona; a Visit with Wm. Lossing and Family, of Phoenix; Bee-keeping for Women.

BY ERNEST R. ROOT.

While Mr. Wm. Rohrig and myself were on the road to visit bee-keepers, we saw in the distance two donkeys (burros, I suppose) loaded down with camp equipment, and a solitary man straggling along with them on foot.

"What is that?" I said.

"Oh! He is one of the gold-prospectors with his mules and camp equipment," said Mr. Rohrig.

As they drew near, the sight, though common in this country, was very novel to me, and I was wondering how I might get a snapshot of the trio unawares. But the trouble was, one of the animals was away ahead of the other, and the man came along behind with the rear beast, prodding him along. Finally Mr. Rohrig called out:

"Say, stranger, this is a tenderfoot from the East, and he would like to get a picture of you and your equipment."

"All right, pard; where do you want us?" said he good-naturedly.

At first one of the burros seemed indisposed to get into the "group," and finally his owner grabbed the halter of each and held them while I pulled out my pocket kodak and took a snapshot. The result is before you.

All through this western country may be seen prospectors a good deal like the one here seen. The country is warm, and they dress merely for comfort. So far, as a rule they have not "struck it rich," but are always *expecting* to. Their scant means do not permit them to travel in palace cars, and consequently they procure a couple of burros at a small cost, camping-outfit, cooking-utensils, etc., and then "rough it" on the mountain-sides. Their faithful animals will live on almost any thing, and the cost of keeping them is almost nothing; while the man with his spade, pick, shovel, and pans, digs and pans as long as his "grub" lasts in the hope of some day striking it rich. When his diggings do not "pan out well," he will pack up and start off on the road for new fields, and that was what our "pard" was doing when we asked him to stop long enough for us to take a picture.

Speaking of "panning out," I was quite interested in noting that this expression originated among the gold-diggers in early times. After digging for a considerable length of time the prospector takes a pan with a sieve bottom, dips down into the mixture of diggings, with the water, and washes and washes until he finds the precious metal. Perhaps his diggings pan out well, but more often they do not. But these gold-hunters, even if they do not "strike it rich" (and that is another expression from the gold-diggers) generally manage to



FIG. 1. —A GOLD-PROSPECTOR.

eke out a living, because they find just enough of the precious metals, either gold or silver, to make it possible for them to continue in the business, with the never fading hope that *some day* they will really and truly make a rich find. So abiding is that expectation that, as a rule, they never are good for any thing else but hunt and dig until death intervenes.

After we had taken a photo of the man

and the donkeys we visited Mr. Martin Rohrig, a brother of William. He has been in that Territory only a short time, but, according to his brother, he is one of the best bee-keepers in the vicinity; a mechanic and a genius, he makes all the little fixings that he requires for his work among the bees. Although he had been there but a short time, he now owns and operates 320 colonies; and at the present rate he will



FIG. 2.—H. F. DOLSON AND HIS JUST-MOVE-IN OUT-APIARY.

soon have a great many more. I should be glad to introduce him, but the photo was too poor to reproduce.

Another bee-keeper in the immediate vicinity was Mr. H. F. Dolson, who has 250 colonies. He hailed originally from Wisconsin; but, disappointed on account of poor seasons, he had moved westward with his family. The day we called on him he had just moved the bees from an out-location to his home, and had just arranged them in order under his bee-sheds as we came up. You will note in the photo, Fig. 2, that he is in the act of taking off the covers, and removing the screens and the binding-strips. Mr. Rohrig and I joked him a little because he was using the old-fashioned unspaced Langstroth frames—frames that he had to fasten with numerous sticks pushed down between. We recommended him to

use Hoffman frames—those that did not require special fastening, and which could be handled as easily and rapidly as the old unspaced frames. Mr. Dolson explained that he began with such frames, and could not afford to change.

Not being able to secure a satisfactory photo of him with his veil on, under the shed, I asked that I might have the privilege of kodaking him rough and ready, just as he was when working among the bees. Complying with my request, he stepped to the house and “posed” in an easy-chair. The ever ready kodak clicked, and here we have him in Fig. 3.

We next took the road again. Just as we were getting into the wagon another Wisconsin bee-keeper, Mr. Wm. Lossing, and daughter, drove up, having just come from town. It was then toward night, and



FIG. 4.—WM. LOSSING AND FAMILY, ALL OF WHOM ARE EXPERT BEE-KEEPERS.

Mr. L. was very anxious that I should stop with him; but having made other plans I arranged to call on him the next day with Mr. W. L. Chambers, the boy bee-keeper who owns 500 colonies. The following day found Mr. Chambers and myself at the Lossing home. Learning that every member of the family was a bee-keeper from the ground up, I craved the privilege of a photo of the whole crowd. The young ladies protested considerably, as they were "not ready;" but after some coaxing I finally secured what I think is a good photo of the whole family, see Fig. 4.

Mr. and Mrs. Lossing sit in front. Verna on the right and Maude on the left are the two older girls. Either one of them, as their father expressed it to me, was the equal of, or better than, any man in the yard; for a girl, whatever she does, will be neat about her work, and this is a matter of prime importance when handling soft combs, honey, and propolis. Yes, these girls could take off combs or sling honey;



FIG. 3.—H. F. DOLSON AT HOME.

and the little miss in the middle, whose name I have forgotten, is also a bee-keeper; and when the extracting days come the whole family turn out and help the father. Mr. Lossing and the girls, as I understand it, have charge of 700 colonies, 400 of which Mr. L. himself owns.

A good deal has been said in years gone by as to whether the gentler sex are strong enough to take care of bees. I well remember the question was once asked of Mrs. L. Harrison, at the International Bee-keepers' Congress in New Orleans, some years ago, whether a lady could keep bees. Mrs. H. very promptly replied that she did not know; but that she did know that a woman could. Mr. Lossing's helpers appeared to be women of the Harrison kind; and not

only women, but I should judge they were ladies fit to grace any society or any home in the East. Many and many a woman has found strength, health, and pleasure, in keeping bees; and I am glad to introduce to our readers the good-looking girls, old and young, belonging to Mr. Lossing's household.

WISCONSIN V. ARIZONA FOR BEE-KEEPING.

"Mr. Lossing," said I, "how does Arizona compare with Wisconsin for bee-keeping?"

"Why," said he, "money could not hire me to go back. A beautiful climate the year round, no chilling snows, no cold weather, but warm balmy air, and honey galore."

With that he took me out into his back yard and showed me some trees only a year or two old, that were young thrifty growing specimens, capable of giving a good amount of shade, and not a little fruit. These, he said with some degree of pride, were samples of what a Wisconsin man can do in Arizona with only a year or so of experience.

In our next issue I will introduce to you some of the members of the Bee-keepers' Association of Maricopa Co. Among them will be J. P. Ivy, a bee-keeper who operates some 700 colonies, and Mike Wall, the owner of 800 more. "Mike" is a character — of the right sort, I mean—always happy and full of fun. More anon.

CELLAR WINTERING.

A Model Bee-Cellar and its Construction.

BY R. F. HOLTERMANN,

Formerly Editor of the Canadian Bee Journal.

A great many articles have been written upon the subject of wintering bees; not a few discussions have taken place at conventions and among individuals upon the same subject; and yet I venture to say that, taking all of those who have kept and still keep bees, the average man knows all too little upon this important subject; and the very best known in our bee-keeping ranks would get better returns did they know more about proper conditions for wintering bees, or had better facilities for practicing what they do know.

DIVERGENCE IN OPINION.

Before beginning, or, perhaps it might be more correctly stated, in opening the subject on hand, let us ask ourselves why it is that there is so great a divergence in the opinions and practices of bee-keepers; why do the practices vary so much? why so much confusion? Is it not because conditions and results are not weighed as carefully as they should be?

Take cellar wintering. One says, "Use a sub-earth ventilator;" another one says, "Use a ventilator;" the third says, "No ventilation is required." Again, one says, "Have a temperature of 60;" another, 52;

another, 42; while another says that just above freezing (32) is best. One says outside wintering is better; another, cellar. Let us suppose that conditions are quite alike, and one man says his bees come out all right with a temperature of 52; the other says his bees will not winter well at that temperature, but he wants 42. Under these circumstances both can not be correct. The trouble simply is, that one man is satisfied with poorer results than the other; and so unless we admit, as in every thing else, that like conditions produce like results, we simply put ourselves down as less intelligent than others, and we are preventing the advancement of the business, which is an instrument in our hands, with God's blessing, first to glorify him, and, secondly, to bring our "food and raiment."

The proper wintering of bees, and bringing every colony out strong in spring, not only in bees but vitality, is necessary to success, and the very foundation of successful bee-keeping. The sooner we recognize this the better, the more the cost of producing honey will decrease, and the less frequent will be the seasons when we do not obtain surplus honey.

These expressions may be considered exaggerated and strong, but they are none too strong, and not exaggerated. In writing, I am not seeking to please every one, neither have I the time to answer those who may object to the statements I make. If any take exceptions to a writer's statements it is for the public to judge.

A man to-day asked me, "Are any of

your bees dead yet?" Having charge of something like 200 colonies I answered, "Yes, if you mean bees. There are bees dying continually." He said, "Oh! I mean colonies." I answered no, and I should consider it a very serious matter if any *colonies* were dead.

What I want to bring out is this: Many are satisfied if they bring the hives out with live bees in every one. No good bee-keeper should be content with this. What every one should aim at is to bring them out of winter quarters with the least consumption of honey, and the least possible loss of bees and loss of vitality in the bees. Nothing less should satisfy.

THE QUESTION OF VENTILATION AND TEMPERATURE.

We read grave discussions as to whether bees require the cellar in which they are wintered to be ventilated. When we understand the nature of the honey-bee, its delicate breathing-cells, its abhorrence of impurities, it seems to me a waste of time to discuss such a question. We know how restless we become, and how injuriously we are affected, when the air becomes foul in the room we are in. Again, the bees consume honey. This turns the saccharine matter in the honey into heat and energy. It expels the water; and if the atmosphere is not changed it must become damp and abnormal. Moisture about the bees, we know to be injurious.

Again, as to temperature, if a floor has been scrubbed in the kitchen, and we sit down in the kitchen at a temperature of 70,



EXTERIOR VIEW OF CELLAR.

those liable to catch cold run great risk; but raise the temperature, and the evil from the dampness is largely overcome. Again, I can be comfortable with an overcoat on when I would catch cold without it. When the temperature of a cellar is discussed, would it not be well to know whether the wooden covers or cushions are on the hive or not? A lower temperature will answer if the cushions are on the hives to prevent heat from passing off. Again, where the humidity is great the temperature must be higher.

I previously spoke of ventilation. I can understand that, the more perfect the conditions, the less movement and activity of the bees, and the less atmosphere is consumed, and the less stores are consumed; but if there is no supply of fresh air in time, the air *must* become damp and vitiated, and then the bees become restless and active, and rapidly consume more stores, use more air, and wear themselves out. Again, weak colonies can stand a higher temperature. The strong generate more heat. These are all questions that require consideration. If the cellar is poorly constructed the air gets in and out here and there, and an uncertain quantity is supplied in this way.

HOW MR. HOLTERMANN COMES TO BE ASSOCIATED WITH BEE WORK AGAIN.

Last summer I found myself for some two years out in evangelistic work. During that time I was almost entirely in the back districts—those neglected on account of inability to help financially, but in which there was much blessing. During that time I spent not my own money, but what the Lord had made me steward of, and what I am afraid many call their own. When that was exhausted I looked around to do as Paul did—went to “tent-making,” and I preached where opportunity arose. At Braintree, or within two miles and a half of it, there is a wealthy stock company—the Bow Park Company, Limited. They have over 1000 acres of land, often over 1000 hogs, several hundred head of fattening steers, sheep, etc. They also make pickles, having about 45 acres in cucumbers alone. The blossoms of these, last year, were much appreciated by the bees. They have about 150 acres in alfalfa, and will have a large area in alsike clover. These people having the capital, I proposed going extensively into the bee business, they to furnish the capital and I to manage, and share in the proceeds. They, having plenty of money awaiting suitable investment, consented, and we decided, in addition to producing honey, to sell bees and queens, to manufacture honey vinegar, and, when suitable opportunity offered, buy honey to sell again. The company has also an extensive pork-packing plant, and intends to make honey-cured ham and bacon; and the travelers selling pork, bacon, lard, and pickles, could also push honey vinegar and honey. Mr. J. M. Shuttleworth, the president of the company, is also connected with

a company, the most extensive exporters of apples, probably, in America, for they have agencies in Boston and New York. It is, therefore, the intention to export honey. It would pay more such firms to engage in the handling of honey, and get in touch with bee-keepers; and it would also be an advantage to bee-keepers to get honey more extensively distributed, as well as products from honey.

PLANNING A BEE-CELLAR.

Our first step was to plan a bee-cellar—one in which a large number of colonies could be wintered, and wintered well. You, as editor of GLEANINGS, situated at Medina, O., know that, in establishing and running a business, the profit often consists only in what you can save in management. What one man throws away is another man's living and profit. That bee-keeping has not been cut down to this, I believe; and yet the most successful man must take into account every detail. In Ontario—in fact, Canada—and doubtless in many portions of the United States, with the best cellar wintering, and the best outside wintering, the bee-keeper can save 7 lbs. of honey by cellar wintering. The bees do not require to generate as much heat, and the temperature does not vary as greatly. Variations of temperature disturb the bees; increased consumption of stores causes increased loss of vitality. The loss in this direction can be estimated only very broadly. Again, an outer case suitable for this climate costs 50 cts. or more. It is our intention to establish out-apiaries until at least 500 colonies are run. A saving of 7 lbs. per colony on 500 colonies would be 3500 lbs. In wintering, cases would cost at least \$250. During prolonged and steady cold, wintering becomes uncertain; and we considered, in view of this fact, that a honey-house, work-shop, and store-room was required—that is, it would pay us to build a first-class cellar, and the house above. The cellar is intended to hold the 500 colonies.

The size is 40×24, and 7 feet in height in the clear. The entire cellar is below the level of the ground. It is built in a sand-bank; is double-walled with a 9-inch wall outside, a 3½-inch wall inside, and a 2-inch space between. The ceiling above is a double floor. The first floor is matched lumber; then a heavy felt paper; then ¾-inch strips and a tongue-and-grooved floor above. The cellar floor is cement; and, laid in the cement, is a board floor. There is one stairway coming from outside. This is for summer use, and is the stairway down which the bees are carried for winter, and out of which they are taken for spring. Another stairway goes down from the shop above, and is for winter use. The object of this construction was to secure thorough isolation and no ventilation through the wall. If ventilation comes, here, there, and everywhere through the walls, the bee-keeper has no control over it, and it may come in when he least requires it. By having a proper ventilator, one which can be

regulated, he has something like a business-like arrangement.

The air comes in at the center of the cellar floor. It is connected with a sub-earth ventilator of three thirty-foot lengths of eight-inch glazed tile joined with cement, making it water-tight. It is laid 8 feet below the ground, and connects with an upright pipe 25 feet high, and on top of it is a cowl always facing the breeze. The air passes through the sub-earth ducts; and they, being water-tight, can not get any moisture from them—a defect that many sub-earth ducts have. But the temperature is raised by passing through the warm earth, as the temperature of the air entering it rises and becomes more capable of taking up moisture.

In the plan you will notice two partitions running crosswise of the cellar; and two, again, join these. In this center compartment stands a self-feeding coal-stove, and it stands right over (but two feet from) the floor where the cold air comes in. This stove regulates the temperature, and, after

being warmed to the required temperature, it passes into the bee-cellars through wooden pipes at the top, which discharge in the far upper and outer corners of the cellars. The stovepipe enters a double chimney, one part for the stove, the other for a foul-air vent. At the opposite side (but nearest to the two wooden partitions) is a foul-air pipe which, by means of vents and stops, can be made to draw the air from either the top or bottom of the cellar. These pipes draw off the foul air, and at the top of the chimney is another cowl, just the opposite of the previous one, which has its back always to the wind, and thus becomes a suction cowl.

In this way temperature and current of air can be controlled. The cellar is new, and 70 of these colonies never had a flight after being two days closed up on the cars, yet all appear to be wintering well—certainly a very severe strain on its qualities for wintering. I find that, when cold walls are exposed to the atmosphere, the moisture condenses there; but here not a particle of



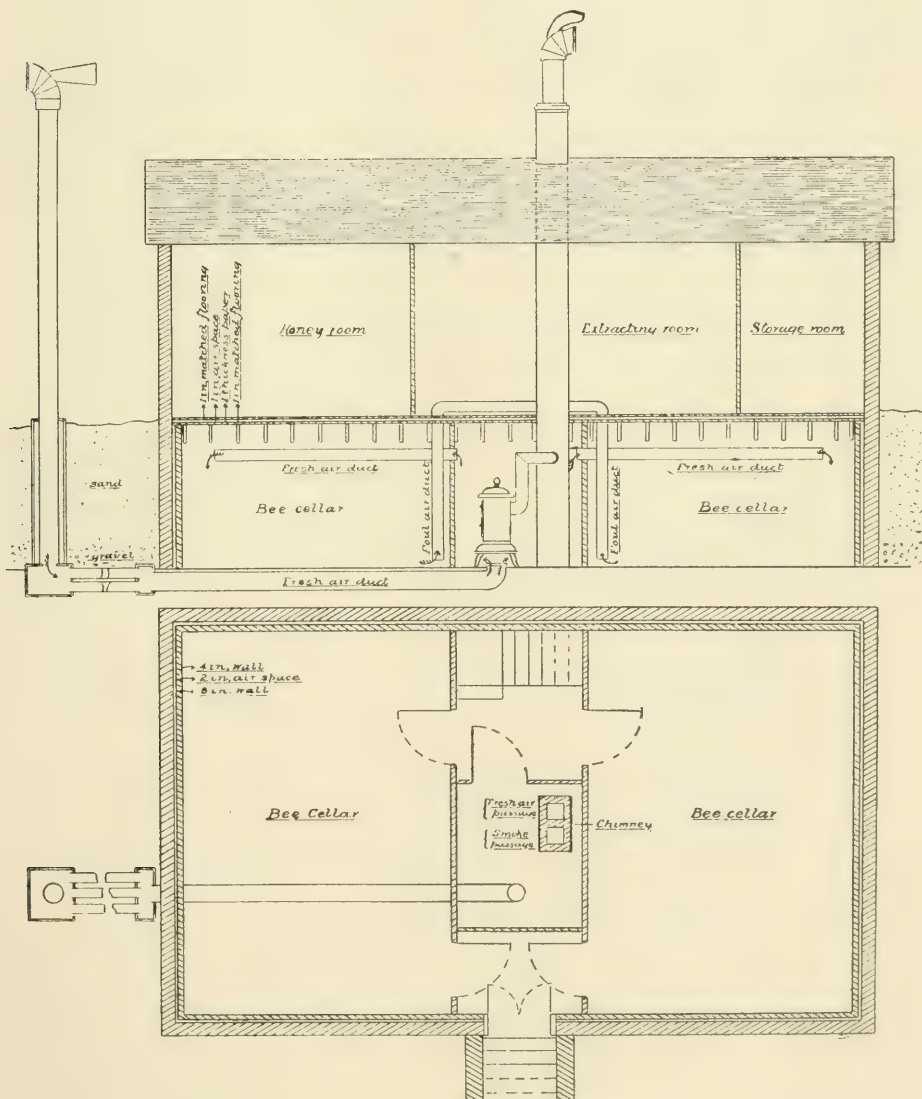
INTERIOR VIEW OF ONE OF THE COMPARTMENTS IN THE CELLAR.

moisture is apparent anywhere. It is carried to its proper place *outside*. A candle (I never take an oil-lamp) held close to the cluster shows it dry. The bees just lie there quiet as in sleep. Occasionally a cluster appears slightly active, but the next time this is quiet.

The hives stand on benches 20 inches high in front, 22 at the back. Four hives can rest on each bench side by side, and four hives can rest one on top of the other.

It will be seen from the bench that the back of the hive is 2 inches higher than the front. I like the back of the brood-chamber raised by means of two blocks $\frac{3}{8}$ inch from the bottom-board, giving a current of

air through the hive. A warm cushion should be placed on top of each hive, especially the top and bottom row. Strong colonies so placed I like to winter at a cellar temperature of 42—perhaps even a lower temperature will answer. If no cushions are used, if the colonies are weak or the bank a clay bank with more moisture, I would raise the temperature some. Note, I keep a thermometer in each cellar, suspended about midway from ceiling to floor, and midway between the fresh-air and foul-air pipe. All these points are important for comparison; but to discuss the question with profit we must get the conditions and then compare; and let us not be



ELEVATION AND GROUND PLAN OF THE CELLAR.

content with what we should not be content with, and delude ourselves with believing we are doing the best when we are not.

When a man loses in winter a colony with a queen and plenty of good stores, there is something wrong. Many a man gets no honey-flow, because the bees wintered so poorly they could not take advantage of the flow that came, especially early clover, or a blossom which stands in a relative position.

In the house above the cellar I have a comb-honey room, a room for extracted honey, and a room for store combs and hives. The first and last are almost air-tight, and can be fumigated. Then there is the workshop.

There are, of course, other conditions, such as good stores, the strain of bees, size of brood-chamber in proportion to the number of bees, etc., which influence wintering; but I have not time to enter into those questions now.

There is one item in your Jan. 1st issue that is worth more to me than the subscription price. I have had every volume for over twenty years—in fact, ever since I have kept bees. No man can afford to do without a periodical upon the subject he is engaged in.

Brantford, Ont., Can., Jan. 20, 1902.

Later.—It was with much pleasure that I noticed your editorial remarks in your Jan. 15th issue concerning the necessity of fresh and pure air for the bees. If I had you here for 24 hours I could thoroughly convince you that temperature is also of great importance. In that flash-light photo of hives piled up in the cellar, the second hive from the top, front row, right-hand side, is one by which I can tell you to a degree the temperature of the cellar, or I can go to the thermometer and tell you to what extent the bees appear under the combs and bottom-bars. How? At 40° the cluster contracts sufficiently to draw all the bees above the bottom-boards, and out of sight when you cast your eye through the opening made between the bottom-board and body by blocking up the brood-chamber $\frac{3}{8}$ of an inch. At 41 a few bees appear below the bottom-bar; at 42, still more. This condition has prevailed all winter. That cellar, I believe, has not varied four degrees all winter, and it affords a beautiful object-lesson. Variations in temperature cause, as per above (contraction and expansion of the cluster), activity; and to husband vitality and stores, this is not desirable.

At this date, Feb. 1, not one hive is spotted by discharges from the bees in winter quarters, and they make no more noise than when they first went in. R. F. H.

[This, according to our experience, is good orthodox teaching on the subject of bee-cellars and their construction. While temperature is important, ventilation is more so, particularly if it be under control. The plan outlined above is ideal if it is expensive. At present we are securing

ideal results in our cellar by opening and closing of doors at night, for we are scarcely losing any bees, not to say colonies. Our cellar is bone-dry, air sweet, and bees *perfectly quiet*, notwithstanding the noise above.—ED.]

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BEE CELLARS OR REPOSITORIES.

**The Importance of Having them Properly Ventilated;
Painted Hives Soaked with Moisture; a Nut
for Mr. Doolittle to Crack.**

BY T. F. BINGHAM.

I wish to call attention to what Mr. Doolittle says in the January *Review* regarding the effect of paint on his hives, and how they were affected by moisture. In the 10 years he has been wintering bees in his cellar successfully, I do not remember, until this winter, seeing a description of it and its shortcomings, if any. But now incidentally it has been shown by him that he had found air in his cave incapable of supporting combustion (that is, a lighted lamp) away from his three-door entrance. On p. 21 of *Review* above referred to, near the bottom, he says, "The mistake which I think he (Mr. Miller) makes is in assuming that this wooden wall remains dry during the winter and spring," and then Mr. D. goes on to explain that the wood between the walls of propolis and paint of his painted hives was "thoroughly saturated with water—so much so, if possible, the same were worse than green lumber." From this statement there can be no doubt as to the condition of his cellar. He is not alone in cave wintering in New York; but while I am unable to say that his plan is the common one, I am of the opinion that most of the New York cellar repositories are constructed upon the practical non-ventilation system.

Mr. Doolittle's conclusions on the paint and moisture question are reasonable, and deduced from experience that no one can deny. The point I wish to raise right here, however, is not the effect that paint has when applied to bee-hives, but, *how did the hives absorb water to such an extent as to be equal to green lumber?* The no-paint remedy that Mr. Doolittle applied, no doubt facilitated the drying of his hives after being brought out of his cellar; but would it not have been better, or at least as well, to have kept the hives *dry* in the cellar, with or without paint, with ample ventilation?

Mr. Doolittle's stone-roof air-tight cellar is quite the reverse of your repository under the machine-shop. It would be of no use to inquire of you if the hives below the shop were dry.

My first winter's experience with a three-inch ventilator-flue in my cellar demonstrated conclusively its insufficiency. My hives, like Mr. Doolittle's, became charged with water; and, while not painted, they did not fail to show that they had been five months in a warm damp atmosphere. A

hundred colonies of bees consuming 400 lbs. of honey per month would liberate not less than 35 to 40 lbs. of water per week. Just suppose two pails of water to be thrown into an air-tight cellar once every Sunday for five months, said cellar to be at a temperature of 40 to 50°. Mr. Doolittle is right. No doubt his hives needed drying. The winter problem remains the problem where the mercury for five months registers from 35 above to 12 below zero.

Farwell, Mich.

[I have just been down in our machine-shop basement, where the bees are. Every thing is dry and sweet, and the dust on the cellar bottom is bone-dry. The number of dead bees on the floor is still surprisingly small.]

I wish our friend Doolittle would construct a large air-duct up through the roof of his repository, of good height, say 16 in. square, and see if there would not be dryer and better air, better wintering, and dryer hives. I am well aware he once had a roof ventilator; but, if I remember correctly, it was very small, having, as I estimate, only a thirtieth of the area of the ventilator recommended by Mr. Bingham. Our Farwell friend is the first one to recommend a ventilator so large, and our own experience seems to prove that his idea is correct. The little three and four inch ventilators were so small as to be worse than useless.—ED.]



TWO-STORY HIVES FOR COMB HONEY; HOW TO WORK THEM.

I am a beginner, and have read with interest Dr. Miller's article, pages 329—331, of last year's volume, and your footnote about handling colonies in a double-story hive for comb honey till the harvest or flow is on, and I would thank you to answer me a few questions.

1. When taking away one story, is the queen left in the hive full of brood with the bees? As I judge, she having no room to lay, would not this cause the swarming fever? If I am right, how do you avoid it? If she is removed with the lower story, she will raise a new colony, of course. If this is done, do you let the other hive raise a queen from brood?

I am anxious to find a way to avoid increase and prevent bees from swarming, when raising comb honey. H. DRISHAUS.
Omaha, Neb., Jan. 30.

[As a general thing the queen is left with the brood in the lower story or that stand that is designed to receive the comb honey, although there are times when she may be put with the removed part of the hive; but in our experience a queenless col-

ony does not show the snap of one that has a mother. There may be times when swarming might be hastened on by confining her majesty to a brood-nest in which there is no opportunity for her to lay eggs. This will be particularly so if the upper story is taken off at the *beginning* of or just before the honey-flow. Our practice has been to leave the super of extracting combs on till the bees have stored some honey in it. When they get in the notion of going above, and storing there, they are likely to keep on storing above in the super of sections that has replaced the one of combs. But if, on the other hand, you notice they are loafing at the entrance, it is better to leave the upper set of combs on until they have ceased loafing or have swarmed. But in using these double hives the *large* entrances should *always* be used. There will then be very little likelihood — at least that is true according to our experience — of loafing or clustering out. The point to be remembered is that the upper story must not be removed *before* the bees get to work storing honey energetically. When they have "got their hand in," they will keep right on, no matter what the queen has got to say about it, below. Locality may alter the behavior of the bees. But in our experience the two-story colonies are not nearly as much inclined to swarm, and, if worked properly, they will secure more comb honey.—ED.]

HONEY STATISTICS.

I write to say that I want some statistics that I felt in hopes you could give to me. First, the average annual production of honey in the United States. Second, the average production of wax in the United States, and about the number of colonies of bees kept; also what State produces the most honey, and how much.

Bowling Green, O. A. J. KILGORE.

[There are no reliable government statistics relating to the amount of honey and wax produced in the United States; but we can give you some fairly accurate estimates on some items. Something like fifty million pounds of comb honey is produced annually in the United States, and in the neighborhood of one hundred millions of extracted. The total value of honey, both comb and extracted, would approximate ten millions of dollars. At a rough guess there are all the way from four hundred to five hundred thousand bee-keepers, or an aggregate of half a million all told. This includes both the small and large producers.]

Concerning the amount of wax produced in the United States, I can not give you very accurate figures. There is something like two hundred thousand pounds of foundation made annually in the United States. Just how much wax is used for making candles for the Roman Catholic Church, dental purposes, and the general arts, I could not say; but probably as much more,

or a total of between four and five hundred thousand pounds, as the annual production of wax. California, in a good year, is by all odds in the lead for amount of honey produced. In a fair season it will ship from its own border three to four hundred cars. The next best State, probably, would not aggregate above 50 cars.—Ed.]



And the Lord God said unto the woman, What is this that thou hast done? And the woman said, The serpent beguiled me, and I did eat.—GEN. 3:13.

This woman, according to her own story, was beguiled by the serpent. That was her excuse. By her own confession she listened to the serpent. She stopped to talk with him. I presume we have no right to take it for granted she knew he was a serpent and an enemy to mankind. There is hardly a question, however, but she knew she was doing wrong. The garden did not belong to her. She and her companion were permitted to live in it. The great Ruler of the universe, who made not only the garden, but these two, the parents of the human race, had given orders what she should do and what she should not do. This she confesses in her talk to the serpent. But she *listened* to him, and was persuaded to disobey. Some of the friends keep telling me, when I talk as I am going to talk to-day, that there *is* no serpent—that there is *no prince of darkness* who is constantly seeking to destroy mankind. They say it is only a myth or the work of the imagination; yet these same people agree with me generally, and say I am doing lots of good in warning people regarding the pitfalls that beset humanity.

We were all startled by the announcement in the papers of Jan. 30, of the escape of two noted criminals and murderers from the jail at Pittsburgh. I wish to consider the matter a little; and in order to get it before you, permit me to copy an editorial from the *Cleveland Leader* of Jan. 31:

A CASE OF SENTIMENTAL SYMPATHY.

The Governor of Pennsylvania recently granted a reprieve to two desperate criminals who were awaiting execution for murder. They had killed, or helped to kill, a grocer in Pittsburgh because he did not quietly submit to the robbery of his store and dwelling. Then the desperadoes killed a police officer who tried to arrest them.

Both of these men had long careers of crime. They were known to be daring, resourceful, and dangerous in the extreme. They could never be of any use to the world while living, and their decreed punishment was eminently just. But because a sentimental young woman of Pittsburgh, perhaps impressed by the statements current regarding the courage, audacity, and ingenuity of the murderers, who are brothers, or possibly influenced by the comeliness of the more experienced of the criminals, asked that their death be delayed, the Governor put off for more than a month the date of their execution.

That proved to be time enough for the desperadoes

*It seems that even the Governor of the great State of Pennsylvania was slightly "beguiled" also.

to complete their task of sawing the bars of their cells, obtaining revolvers from some confederate, and adding a sensational escape from jail, accompanied by attacks upon two guards which came barely short of murder, and showed the utmost indifference to the taking of more lives of honest men. Now the murderers are at large, armed and more utterly callous than before, if that were possible, as to brutal crimes of whatever nature. They can commit a long series of outrages upon good people and their property before they come to the end of their bloody story, which can hardly be any thing else than violent death.

Every officer who may try to do his duty if he gets a chance to attempt the arrest of either or both of these desperadoes will risk his life. Several honest men are likely to be killed before the murderers end their work of rapine and assassination. Fresh tragedies are confidently expected by experienced police officers. Is it not clear that sympathy for convicted murderers can be overcome?

At the time the above editorial was written, nobody knew how it was possible for these desperadoes to get out as they did; but a dispatch in the papers of Feb. 1 throws some light on the matter:

BUTLER, PA., Jan. 31.

With half a dozen or more bullet wounds in their bodies, Edward and John Biddle, the murderers who escaped from the Allegheny County jail in Pittsburgh, Wednesday, were captured by officers after a desperate standing fight in a sleigh on the road between Butler and New Castle this evening.

Mrs. Kate Soffle, the wife of the jail warden who supplied them with saw- and revolvers and then ran away with them, was caught with them. When the officers began firing on them she implored Edward Biddle, the murderer with whom she was infatuated, to shoot her. Throwing her arms from around his neck, he refused, and turned to battle with the officers who had brought the two to bay. She then fired a bullet into her own breast. All three are now in this city. Doctors say that they will die.

I am going to take the liberty right here, dear friends, to read a little between the lines concerning the communications that have appeared lately in regard to this matter. Of course, I do not know the full particulars, but I think I can guess pretty nearly the state of affairs, as I have had some experience and some acquaintance with those in our jails as well as those outside. This Mrs. Kate Soffle, the wife of the jail warden, was "*beguiled*" by a "serpent" in the shape of Edward Biddle. Both of the brothers were under sentence of death. Their previous history indicated that they were desperate men; and if there was any hook or crook by which they could elude their keepers they would do it. Their previous record of crimes shows it plainly enough. I can imagine the notorious Edward saying to his brother, "Look here, Jack, we are in a tight place. Unless we can bribe or make friends with somebody to help us, there is no hope. Drowning men catch at straws, you know. That good-looking woman, the wife of the warden, I imagine as she looks at us, is already touched with a feeling of sympathy. If I had a little more time before our execution, and fortune favored us, I think I might make friends with that woman, and get her to provide us the means of getting out."

The Bible teaches us on every page that God helps those who call on him in time of need. May be you think I am taking a liberty when I suggest that I have reason to believe *Satan*, in like manner, helps those who belong to him in like manner when

they call on him—at least he helps them after a fashion. Edward Biddle got the Devil to help him, without question, in the work he set about. From the position Mrs. Soffle held, she had access to the prisoners. This man improved his opportunity, and, even with all the odds against him, persuaded this woman he was innocent of the charge; furthermore, that he had never murdered *anybody*. He was a victim of circumstances. They had talks at different times. Her sympathy was at first aroused for, as she supposed, an innocent man, or comparatively innocent, who had been greatly wronged. The fact is hinted at that he was a good-looking young fellow. And, by the way, this is not the first time that I have seen certain women seemingly drawn toward a man who was desperate and reckless. The air of bravado that many of these fellows put on is oftentimes mistaken for heroism, not only by silly women but by silly boys. We do not know what woman it was that persuaded the Governor of Pennsylvania to put off the execution for a month or more. It may have been this same woman, or some other like her, whom she enlisted in her cause. We need not go over these sad details, even if we knew something about it.

In our second clipping we are told that, while facing death, and with all that crowd about her, she—a married woman, and the mother of children—threw her arms around the neck of Edward Biddle, and implored him to shoot her. The *Cleveland Leader* uses the word "infatuated," and it is the right word, without question. She was so infatuated with that reckless, blood-stained criminal that she deserted her husband, her children, her good name, even her hope of heaven, and all that she or any woman in like circumstances has, for this silly, foolish infatuation.

Now, dear friends, you may think I have been laying a tremendous amount of blame on her poor shoulders. So I have, for it belongs to her; but still I pity her. If she is now alive I pity her from the bottom of my heart, for she was beguiled like the mother of the human race by looking at and listening to the serpent. The first verse of the chapter from which I have taken my text reads, "Now the serpent was more subtle than any beast of the field that the Lord God had made." These desperadoes evidently took it for granted they could make no headway with the warden. They did not try it. Neither did Satan undertake to do any thing with Adam. He did not tackle him at all. As I understand it, he commenced his conversation with the woman, and in a roundabout way. Oh how many times in this short life of mine have I seen Satan in human form—perhaps I might say in the form of a good-looking man with lots of money—commence in a roundabout way to entrap some woman—yes, may be a child! I once saw a ruffian give the wink to some of his companions, and then approach a little girl that came into the store to trade.

He began talking with her, admiring her hair, stroking it with his hand, and telling her how he loved little girls. I ached to see that man horse-whipped out of town. I do not know what became of him; but if he kept on in the way he started he is probably now behind the bars; or may be his life has paid the penalty of his many crimes. Please do not misunderstand me, dear friends, and think I mean to say that Satan always does his work in the form of a good-looking *man*. Let me tell you of another story of prison life, of which every word is true.

A young man was in jail awaiting his trial for a penitentiary offense. A godly man who was visiting jails spent some little time with him, and he was soundly converted. Some of you may smile at my being so positive. But wait till my story is ended, and you shall be the judge as to whether his conversion was genuine or spurious. The sheriff and his wife were both Christians. They found John had stopped swearing, card-playing, using tobacco, and every thing else that was bad; and when he took to reading his Bible, and asking God, as he knelt on that stone floor, to forgive his past sins (and even crimes), they rejoiced, and both lent him a helping hand. John was a good-looking, stout, muscular young man; and with his good looks and muscle he had a spirit of reckless daring. He did not fear death nor any thing else. He delighted in dangerous feats where life and limb hung in the balance, and I rather think that was one secret of his desperate acts during the past. The sheriff's wife was a brilliant, good-looking woman. She was a leader in church work. She helped John in studying the Bible, taught him to sing beautiful hymns, etc. When John began to feel uneasy at so many attentions she laughed at his diffidence, and told him she was old enough to be his mother, and that it was all right. But the time finally came when John, who had, before his conversion, been reckless among women as well as in other ways, was to have his Christianity tested in a way he had never dreamed it would be. His confession, made to the friend who, in God's providence, led him to Christ, was something like this:

"Dear brother B., you do not know—in fact, you can not understand—the terrible danger that besets me. I want to hold fast to my religion; I want to be a Christian. In my old life I was always ready to go half way, or more than half way, when any thing like this crossed my path. This woman's husband is one of the best men I ever knew. I would not hurt his feelings nor harm a hair of his head for the world. But just see where I am placed. I ought to go away from here. But I am a *prisoner*, and this woman is my keeper. My own peace of mind demands that I never see her nor speak to her again. God knows how quickly I would get away from her presence or influence if I could. I can not stand it—oh! I can not stand it. I am too

weak—it is not in me. Oh! God help me in this great and unexpected trouble. Help me to be a true Christian and a faithful follower of Christ Jesus.”

And this strong man bowed his head and wept convulsively. His older friend—older in years as well as in Christian experience—told him God would provide a way out. He assured him that a sense of his own frailty and weakness was the best indication he could possibly have, that he was on safe ground. “Him that cometh to me I will in nowise cast out.” In a few short days John was not only free from the danger that threatened him, for God opened his prison-doors, and he went out among men, a free and an honest man.

There is something peculiar about Satan's work along this line. One of the peculiarities is this: If Satan once gets a foothold—if a man or woman either stops to listen to him, or is curious about this strange labyrinth (of sin) that seems harmless enough at the outset—if, as I have said, either the man or woman decides (perhaps only out of curiosity) to go just a little way in this direction, and explore, they will be pretty sure to be lost. The winding-up is often like the newspaper clipping, only this is a little *more* marked than any thing I have seen before. *She* became *infatuated* with a *murderer*. Satan does not scruple about whom he uses in this kind of work. The man or woman whom he has woven into his toils may be very commonplace indeed. The world may look on and say, “Why, what possesses that fellow to go crazy after such a woman?” I do not think the world often gets a true answer. It is this: It is the Devil *himself* that “possessed” him, that made him act so. It is the Devil, and he *only*, that possessed that man so as to induce him to forget his wife, his children, his good name, his religion, his Maker, and his all. Sometimes the parties are excused by saying it commenced in a harmless, innocent way. I have heard excuses made like this: “I do not believe either of them thought of doing any thing wrong when it commenced. Circumstances were such that they were thrown together a great deal; and, before they knew it or realized it, their peace of mind was gone, and Satan had them in his toils.” I can not quite agree with this. I think these two people—that is, these two whom you say did not dream of any thing wrong—*did* know there was just a little wrong; and it is the *little* wrong that does the harm. Whenever there is any thing in our lives that it seems expedient to cover up from the full light of day, there is danger of wrong. I do not believe in secrets; and perhaps I might say, in parenthesis, I do not believe in secret societies; but I will not quarrel with those who believe otherwise. If we are at all times willing that all we do and all we say may, if occasion demands, be open to the light of the outside world we are on pretty good ground. Of course we do not want strangers intruding on our privacies; but what I

mean is this: Whenever it shall be necessary or expedient that any particular event of our daily lives be spread out before the world, if we are honest and true with our fellow-men at such times as this we need not be worried nor troubled.

There is something peculiarly Satanic about all this work. As a rule, a man who is a professor of religion is not likely to drink or gamble or steal; but it has been thrown up to us again and again that some of our devout Christians who talk and pray in meeting are just as likely to be caught in some disgrace along this line as any other; yes, and some of the enemies of Christ Jesus say they are *more* likely. They tell us (and we can not altogether deny it) that even our *ministers*—especially our revival ministers—are notorious for having favorites among the opposite sex, especially during revival times. Why, the very *thought* of it is awful. Let us hope that this thing belongs more to the exciting revival seasons of times past than to those of the present day. Then there is another feature of this case. When this minister is remonstrated with by his good friends he absolutely denies that any thing of the kind exists or ever has existed. He declares unblushingly that his inmost thoughts are free from it in the sight of God; but when he is advised to shun even the *appearance* of evil, and to keep entirely away out of *sight* as much as possible of the one who is talked about in connection with his name, in a very little time the two are found together again. He explains it by saying there were “peculiar circumstances” of such a nature that the thing absolutely *had* to be talked over, and explanations made. Poor silly fool! No, I have got it wrong. I should say a *pair* of poor silly fools. Satan has so blinded their eyes and bewildered their judgment that they have not even common sense—no, not even the commonest kind of sense—and the thing goes on—that is, unless the friends of the parties have the good sense and wisdom to see there is no other remedy for either Christian or sinner than to get them away from each other. If the man is sent off to another parish he may be all right the rest of his life. He *ought* to be, on the principle that a burnt child dreads the fire. If the distance is not great, however, Satan does not let go. He manages, by some hook or crook, to get up an excuse so that one or both of the parties shall bridge the distance. God knows how it pains me to go over this thing; and I would not do it were it not for the hope that I may be enabled to hold up a warning. I have had a man look me in the face, and declare before God that no such thought as I had suggested had entered his heart, and I was over-persuaded by friends all around me to try to think the man told me the truth. Only a few weeks after, he admitted he was getting a divorce from his wife as fast as he could, and then he was going to *marry* the girl. I have heard men tell falsehoods when they were crazy with strong drink,

and I tried to excuse them because their will power had been sinned away, and they were hardly responsible for what they said or did to satisfy the appetite; but I almost feel that the drinking man has more sense and *conscience too* than this *other sinner* who *may be* at the time a *temperance lecturer*. But there is another trouble with this sort of sin. You can say to the intemperate man, "Behold the Lamb of God that taketh away the sin of the world." You can say it to him because he does not make any profession; but how can you say to this other man, who is daily preaching Christ Jesus (or pretending to), and exhorting sinners to repent—how can you say to him that Christ Jesus is the remedy for any sin or *all sins* that beset mankind?

Every little while of late we see notices in the papers of action for damages commenced against certain persons for "alienating the affections" of a wife or a husband as it may be. We gather from the reports that the laws are pretty severe on the offenders in this line, and they ought to be. Many people, no doubt, smile at this thing as utterly ridiculous; but, dear friends, do not be too sure. It may, like the smallpox, or like lightning from the sky, strike into a neighborhood or locality where you least expect it. While considering this thing we may say, "How can any man or woman be such a fool, or be so silly, as to be 'beguiled' by anybody, no matter how smart?" Let me say again, do not be too sure. A man does not have to be very smart nor very bright to discover, if he sets himself seriously about it, that he may find silly people almost anywhere. Satan is a good trainer. He goes to work deliberately, and takes plenty of time. He suggests to his victim, "You have money and influence. You can take this person into your employ, pretending you need just such a one." The only thing that Satan wants is to find somebody who will stoop *low* enough, degrade his manhood, and listen to the teachings of this wily "serpent" we are told about in the third chapter. Satan's work is in enticing sinners, and *sin* finally is much the same in the end, whether it be drinking, gambling, or *beguiling* some unsuspecting one who might never have had a wrong thought if left alone. Adam and Eve, even in the garden of Eden, had to be tested and tried; and you and I, dear friends, must in some manner be tested and tried before we can really be *soldiers* of the cross. May God help us to be ready in the *very outset* to say, "Get thee behind me, Satan."

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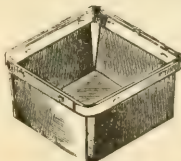
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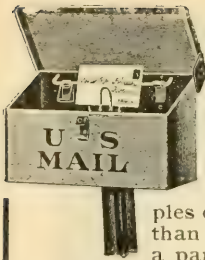
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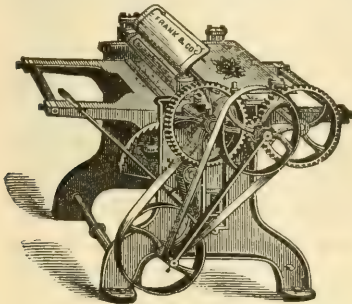
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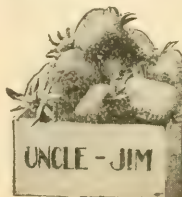
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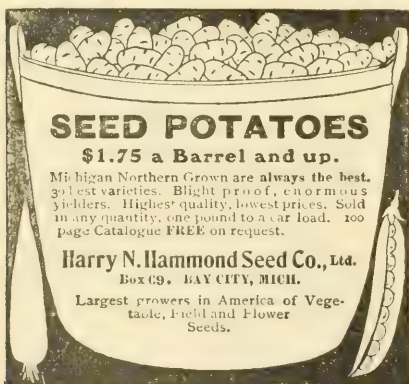
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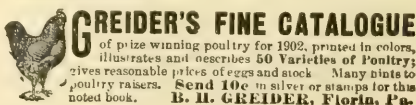
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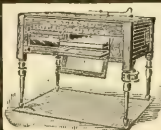
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F. W. MANN CO., Box 37, Milford, Mass.



1 2 3 4 5 6
Count the Chicks
as they come out. Then count the eggs, and you will see why so many people are using

Successful

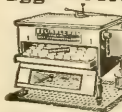
Incubators and Brooders.

The healthy egg becomes the vigorous, husky, moneymaking hen. You will want our beautifully illustrated catalogue. Five different editions in five languages. English edition 4 cents; others free. It is a poultry Bible.

Des Moines Incubator Co.,

Box 503, Des Moines, Ia., or Box 503, Buffalo, N. Y.

This 50 Egg BANTLING SPECIAL



is the equal of any in incubator made in hatching quantity. It costs less because it is small. The methods of heating, regulating, ventilating, etc. are thoroughly reliable and results are guaranteed if you follow instructions. It's the biggest bargain in the hatch at the price. Fully described in **Our 20th Century Poultry Book**. Sent for 10c, worth \$1.

We have 115 yards of thoroughbred poultry. **\$5** Reliable Incub. & Brod. Co., Box 849 Quincy, Ill.

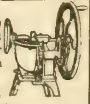
The Egg Question Solved

HUMPHREY Green Bone CUTTER

Guaranteed to cut more bone, easier and quicker than any other or your money back. Only open hopper machine. Catlog and Egg Record free.

HUMPHREY & SONS, Box 51, Joliet, Ill.

EASTERN AGENTS, (JOSEPH BRECK & SONS, Boston. JOHNSON & STORES, Philadelphia. GRIFFITH & TURNER CO., Baltimore.)



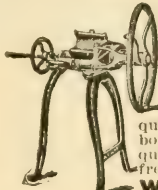
It Brings More Eggs

Get a Dandy Green Bone Cutter and double your egg yield. Our new catalogue tells all about feeling green bone, and the best machine for cutting it.

Sold Direct
on 30 days' trial.

PRICE, **\$5**

and up
Stratton Mfg. Co., Box 54, Erie, Pa.



A FRIEND to poultrymen—to chickens.

Adam's GREEN BONE CUTTER

It runs easily because it has ball bearings. It cuts clean, quickly and perfectly. Makes a fine bone shaving such as chickens require. Before you buy send for free catalogue No. 39.

W. J. ADAM, JOLIET, ILL.

Why Successful!

Doesn't it vex you, after ordering "one hive nailed up and painted," to get one all colors of the rainbow, bodies and supers not square, covers don't fit, frames crooked, one nail where two ought to be, etc.? That doesn't happen here, because the **Bee Supplies and Honey Business** is the only iron we have in the fire, and we know how to keep it from burning. We are practical, and can advise you correctly when you don't know just what you want. We don't sell "stickers" or fandangled paraphernalia to get your dollars, because we want you to come again. We sell the best hives and supplies at manufacturers' prices. Service and shipping-facilities perfect.

Our Standard-bred Italian Queens are the quality. Orders booked now for, untested, 75c each, 6 for \$4.00; select tested, \$1.50.

New 1902 catalog free.

The Fred W. Muth Co., Front and Walnut, Cincinnati, Ohio.

Queens You Should Have

Does blood tell in other stock? Give your bees a chance. Stock used for breeding the queens offered—not from a sport, but my pick out of an apiary giving last season an average yield as follows:

Honey Gathered.

102 lbs. extracted and 68 lbs. comb honey per colony besides increase and stores for winter.

Quality of Comb Honey Produced.

"Man! It would dazzle you."—Wm. McEvoy, Ontario Government Inspector of Apiaries.

Wintering Qualities.

Up to the present, January 30, I never found these bees to show the least indication of unrest—always perfectly quiet. They are wintering perfectly.—Frank T. Adams, Brantford, Canada.

General Commendation.

Out of those queens you sent me I have produced the best race or strain of bees I ever owned. Remember that is saying a lot, as I have tried every breed imported to this country. The bees winter better, build up, and stand cold chilly winds in spring better, and are more suitable than any bees I ever owned. For the season they gave me about double the honey the pure Italians did, and more increase. Glad you are going into the queen business, and are going to join our ranks again. We are much in want of a few men like you. C. W. Post, Ex president Ontario Beekeepers' Association (owns 365 colonies).

S. T. Pettit, Canada's most successful comb-honey producer and bee-keeper, says: "The blood in my apiary is largely the progeny of queens sent by you, and they are grand bees."

Prices of Queens.

They are duty free to the United States. Tested, \$2.00 each; \$10.00 for 6; \$18.00 per dozen. Untested until July 1st, \$1.25 each; \$7.00 for 6; or \$12.00 per dozen. Same after July 1st, \$1.00 each; \$5.50 for 6; or \$10.00 per dozen. Larger quantities, prices on application. Postage stamps taken for fractions of a dollar. To be fair to every one, no selected tested queens are offered. Every one has the same chance. The above queens are bred from a careful selection of Italians and Carniolans. Pure Italian and Carniolan queens same price. Price of full colonies on application. Orders booked as received, and filled as quickly as possible. Order early. Address

R. F. Holtermann,

Bow Park Co., Limited, Brantford, Ontario, Canada.

FOR SALE—Barnes combined saw, good as new, \$20.00. D. P. Holt, Americus, Ga.

Try a Sure Hatch Incubator. See adv't on page 163.

Sections

\$1.50

January 1 we commence making extensive improvements in our factory and warehouse. The following regular No. 2 sections are on hand, and we desire to sell them before beginning the improvements, as they will be in the way. In order to sell them quickly, we make the low price of \$1.50 per 1000 in any quantity.

- 420M $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ inches.
- 28M $4\frac{1}{2} \times 4\frac{1}{2} \times 2$ inches.
- 31M $4\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{8}$ inches.
- 35M $4\frac{1}{2} \times 1\frac{1}{2} \times 7$ -to-the-foot.
- 24M $4\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$ inches.
- 2M $4\frac{1}{2} \times 4\frac{1}{2} \times 7$ -to-the-foot.
- 43M $4\frac{1}{2} \times 4\frac{1}{2} \times 7$ -to-the-foot.
- 25M $3\frac{1}{2} \times 5 \times 1\frac{1}{2}$, no-beeway.
- 16M $4 \times 5 \times 1\frac{1}{2}$, no-beeway.
- 52M $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ no-beeway.

Page & Lyon M'f'g Co.,
New London, Wis.

1902 ITALIAN QUEENS.

From imported and home-bred mothers, by up-to-date methods. Tested, \$2.00. Untested, \$1.00; six, \$5.00; twelve, \$9.00. Full colony, \$6.00; three-frame, \$2.00; two-frame, \$2.50; add the price of queen. Discount on large orders. Write for circular.

Rufus Christian, : Milledrim, Georgia.

Queens by Mail To-Day, Safely!

Abbott L. Swinson, queen-specialist, will fill orders for Breeders at \$5.00; Tested Queens, \$1.50; Untested, Warranted, \$1.00 any day. Best Albino and Italian stock. **SWINSON & BOARDMAN, Box 358, Macon, Ga.**

BERMUDA

With cable communication and equable winter temperature of 70 degrees, is reached in 48 hours from New York by the elegant steamers of the Quebec Steamship Company, sailing every ten days up to January, and then every five days. The situation of these islands—south of the Gulf Stream—renders

FROST UNKNOWN,

and the porous coral formation prevents malaria. The Quebec Steamship Company also despatches highest class passenger steamers every ten days for ST. THOMAS, SANTA CRUZ, ST. KITTS, ANTIGUA, GUADALOUPE, DOMINICA, MARTINIQUE, ST. LUCIA, BARBADOS, DEMERARA, and the principal WEST INDIA ISLANDS, affording a charming tropical trip at a cost of about \$4 a day. For descriptive pamphlets, dates of sailing and passages, apply to

**A. E. OUTERBRIDGE & CO., Agents,
39 Broadway. New York.**

ARTHUR AHERN. Sec., Quebec, Canada.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell or exchange, 32 cal Winchester rifle, D. B. shot-gun, b-flat cornet, guitar, accordion, camera, watches, and clocks, for foundation, 4½ plain sections, fences, escapes, 8-frame L. hives in flat, or wax.
H. S. TEMPLE, Lowell, N. Y.

WANTED.—To buy a second-hand tread horse-power. State condition, price, and shipping weight.
L. L. GRASS, Sago P. O., N. C.

WANTED.—To purchase 30 or 40 colonies of bees, near Toledo, Ohio; must be cheap, and clean stock, March and April.
P. H. RANCH, 345 Delaware Ave., Toledo, O.

WANTED.—To exchange blackberry plants and job printing, for queens, to be delivered next summer. Price list free.
B. R. YOUNG, Girard, Pa.

WANTED.—Choice clean worker brood-combs. Hoffman frames preferred.
W. A. SMALL, Waltham, Mass.

WANTED.—2000 (more or less) Langstroth combs, self-pacing or otherwise; also 100 to 200 colonies of bees, Langstroth frames. State price f. o. b. station. Only a good article wanted.
R. F. HOLTERMANN, Bow Park Co., Limited, Brantford, Ont., Can.

WANTED.—To sell, improved comb foundation. Send 10c for sample, by mail.
H. VOGELER, New Castle, Cal.

WANTED.—To exchange Dadant uncapping-cans, Root's No. 5 extractor, and other supplies, for honey or wax.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—10-in Root foundation-mill, in good condition, in exchange for fine queens in May and June. Describe fully.
E. F. ATWATER, Meridian, Ida.

WANTED.—To buy for cash, a good second-hand Dadant uncapping-can. Write description and price.
G. S. CARPENTER, Queensbury, N. Y.

WANTED.—To furnish best strains Barred Plymouth R. cks, and eggs. Eggs, \$1.00 for 13; 100, \$5.00. Fertility guaranteed.
CHAMBERLIN HILL POULTRY FARM, Jordan, N. Y.

WANTED.—To sell or exchange, 160 acres of good land; house, barn, and some fence, \$500; 200 hives of good bees, and hive-factory, extracting-tools, lumber, etc., \$600; 70 cases, 10 g l lons each, good honey, \$300. I want cheap property in San Francisco, Cal., or near it, or cash.
S. W. CONRAD, Poplar, Tulare Co., Cal.

WANTED.—To exchange a stock-farm in Oklahoma, for land and bees in a good bee locality further east.
J. FOLIART, Bostick, Ct.

WANTED.—Buyers for Orton's bee-keepers' gloves, that reach to the elbow and fasten, made of strong leather and canvas, \$1.00 per pair postpaid, any size. If thumbs and fingers are not wanted cut them off. Best protection to hands and arms. Be sure and write plainly size wanted.
PERCY ORTON,
20 W. Center St., Gloversville, N. Y.

WANTED.—To exchange the superior stock of red clover Italian queens for empty worker combs in Hoffman frames.
PRESTON STORE & PRODUCE CO.,
Dority, W. Va.

WANTED.—Apiary and small farm. Would buy or rent. Want good fruit and potato land, and sweet clover and fall bloom.
R. S. BECKTELL, New Buffalo, Mich.

WANTED.—To buy raw furs for cash, especially skunk, opossum, raccoon, lynx, red and gray fox, mink, otter, and muskrat. Write for price list.
ELMER BROS., Bergen, N. Y.

WANTED.—To buy 300 to 800 colonies bees in Colorado alfalfa and sweet-clover district. Write, with price.
C. H. WEEKS, West Groton, N. Y.

WANTED.—Young man to assist in apiary of 250 colonies. State age and experience. No liquor or tobacco. Commence work March 1st. Address
M. P. RHOADS, Las Animas, Col.

WANTED.—To exchange Barnes machine for bees, or incubator and brooder.
G. F. TUBBS, Annincreek, Pa.

WANTED.—To exchange for cash or wax, one No. 25 Cowan extractor, 100 R-11 honey-boards, and 1901 make of Daisy foundation-fasteners. *Bargains.* Write to
M. H. HUNT & SON, Bell Branch, Mich.

WANTED.—A buyer for my 80-acre tract of land in Crawford Co., Mo., at \$10.00 per acre, one-half cash; balance on time payment. Address
LOUIS WERNER, Edwardsville, Ills.

WANTED.—To sell or exchange gasoline-engines for all purposes—stationary, marine, bicycle, etc.; want machinery of all kinds.
Robert B. Gedye, LaSalle, Ill.

WANTED.—To sell Rocky Ford cantaloupe seed. Seed of these famous melons postpaid, 40 cts per pound. Choice selected stock.
H. F. HAGEN, Rocky Ford, Colorado.

WANTED.—To know who has 200 colonies of bees to sell cheap; also what young man would like to serve an apprenticeship with Quirin the queen-breeder.
H. G. QUIRIN, Parkertown, O.

Black and Hybrid Queens for Sale.

150 from stock purchased in, to go any day at 40 cts. each; 6 for \$2.00; 50 for \$15.00. Safe arrival.
SWINSON & BOARDMAN, Box 358, Macon, Ga.



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We are the largest manufacturers of vehicles and harnesses in the world selling to consumers, and we have been doing business in this way for 29 years.

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but ship anywhere for examination guaranteeing safe delivery. You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness. Our prices represent the cost of material and making, plus one profit. Our large free catalogue shows complete line. Send for it.



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Farm Harness
Price \$24.
4 fine as sells for
\$3.00 to \$3.00 more.

No. 600.—Surrey. Price \$75. As
fine as sells for \$35 more.

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Buggy
Price
\$39.30

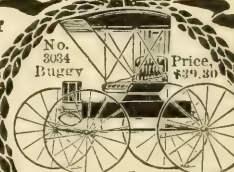
Elkhart Carriage & Harness Manufacturing Co., Elkhart, Ind.

At Factory Cost

We are giving our customers the benefit of jobbers prices on Carriages, harness and other horse accessories. Factory figures are quoted—dealers profits are eliminated.

You Get the Profits

In addition we give you selection from the largest stock in the world of high grade vehicles and guarantee satisfaction or money returned. Send for catalogue and see how much you will save.



No. 394
Buggy
Price
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Shipment from Columbus.

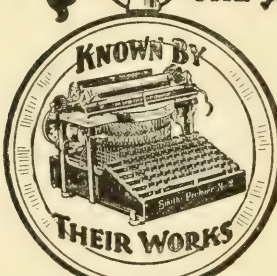
The COLUMBUS CARRIAGE & HARNESS CO., }

Write to nearest office. {

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COLUMBUS, O., P. O. Box 772.

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SIMPLE, DURABLE ALWAYS RELIABLE

A dollar of service for every dollar of cost. That is the record. Illustrated book free.

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is the title of the most complete and comprehensive illustrated Treatise, on the subject of spraying, with tables of costs and formulae. The result of actual use at the leading Agricultural Experiment Stations, tells of the SPRAMOTOR, the "Gold Medal" machine at the Pan-American. 84 copyrighted pages. We mail it free. Ask for it.

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SEWS ANYTHING

from silk to coarsest fabrics. The celebrated

BALL-BEARING ARLINGTON

equal to any \$40 to \$65 Machine. Combined highest grade mechanism. Efficiency with beautiful appearance. Finest and most complete attachments. BALL BEARING, hence easy running, noiseless. Guaranteed for 20 years. 250,000 sold. Testimonials from every State.

Write for Free Catalogue showing all styles and samples of work. Arlington guaranteed machines from \$11.95 up. Our Automatic Cabinet at \$17.75 is a wonder. A CASH BUYER'S UNION, Dent, A. 45, CHICAGO, ILL.



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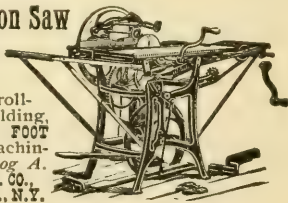
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With every hare sold goes a full pedigree, register number, and score-card, scored by an official judge. Does will be bred to one of our famous high-scoring bucks free. Write for book. Mer. of The A. I. Root Co. J. B. MASON, MECHANIC FALLS, MAINE.

Union Combination Saw

For Ripping, Cross-cutting, Rabbing, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line FOOT and HAND POWER machinery. Send for catalog A. SENECA FALLS MFG. CO., 44 Water St., Seneca Falls, N. Y.

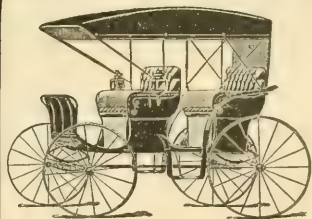


30 DAYS FREE

Now for the new Season.

Since a satisfied customer is the best advertisement we could have, we propose to satisfy every one that our

Split Hickory Vehicles



are the best made, and will ship anywhere on **30 Days' Free Trial.** Take it home, listen to it, use it, and pay for it when you are satisfied that it is a bargain. We would not dare to do this if we did not know that every thing we make would prove satisfactory. If you do not think they are the best, after a fair trial, send them back. We won't quarrel with you. Our new catalog fully explains this plan and shows our full line of vehicles and harness. It is free.

Ohio Carriage Manufacturing Co., Station 27, Cincinnati, Ohio.

A REMINDER.

Time to buy that carriage or buggy. We make a full line and sell direct on **30 Days' Free Trial.**

We save you dealer and jobber profits. **Enough said.** Write for 22nd annual catalog. Mailed free.

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Pioneers of the Free Trial Plan.



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Sixteen years experience in selling standard grades of Vehicles and Harness

Has made our work favorably known for its reliable quality. It is

BUILT FOR SERVICE
Substantial—Highest Material—Best Work.

AND THE PRICE IS ALL RIGHT, TOO.

A shrewd discerning buyer, scouring the market for the best values, cannot afford to be without our Catalogue. A postal will bring it **FREE.**
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It will
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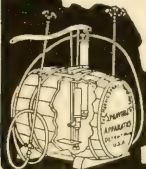
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all about the advantages of and the necessity for spraying. You may not, however, have known about the best and most reliable spraying outfit fit on the market.

HARDIE SPRAY PUMPS

have made that kind of a reputation wherever they have been used, and for all classes of work. We make them in great variety, embracing back to back and barrel sprayers. Full line of spray nozzles, extra on rod and other spraying accessories. Send for free illustrated catalogue. Tells all about plant and vine diseases, and gives formulas for their treatment.

The Hardie Spray Pump Mfg. Co.,
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Wagon World Awheel.



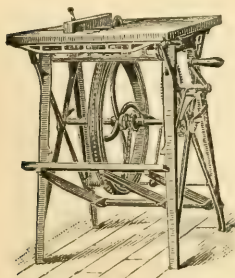
Half a million of these steel wheels have been sent out on our own wagons and to fit other wagons. It is the wheel that determines the life of any wagon, and this is the longest lived wheel made. Do you want a low down **Handy Wagon** to use about the place? We will fit out your old wagon with **Electric Wheels** of any size and any shape tire, straight or staggered spokes. No cracked hubs, no loose spokes, no rotten felloes, no resetting. Write for the big new catalogue. It is free.

Electric Wheel Co., Box 95, Quincy, Ills.



FENCE! STRONGEST MADE.

Bull-tight. Sold to the Farmer at Wholesale Prices. **Full, Guaranteed. Catalogue Free.**
COILED SPRING FENCE CO.
Box 101 Winchester, Indiana, U. S. A.



BARNES' Hand and Foot Power Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc. etc.

Machines on Trial.
Send for illustrated catalogue and prices. Address
W. F. & Jno. Barnes Co.,
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SPRAYING

Start Right.
Success depends upon it.
With the "incomparable"

Bordeaux NOZZLE,

and one of our "World's best" spraying outfits, you will save 75 per cent of all kinds of insects, and disease. We save money for you. Makes Emulsion while pumping. Kills insects and lice on chickens and animals. Made only by

THE DEMING CO., SALEM, OHIO.

Twelve varieties of sprayers. Write for our booklet treating of all kinds of diseases and insects. Sent free.

Write us or our Western Agents,
Hendon & Hubbell, Chicago, Ills.





The new and revised edition of Facts about Bees, fully describing the Danzenbaker hive and system of producing comb honey, will be ready for mailing in a few days. They may be had by applying to Francis Danzenbaker, Box 67, Washington, D. C., or to us.

COMB HONEY.

When in need of comb honey let us supply you, as we have a large stock to select from. Our stock of extracted is very low, and we shall be pleased to get samples and prices from those having choice extracted for sale.

BEESSWAX WANTED.

If you have any beeswax to sell let us hear from you. We need it now more than we shall next June. For a number of years a great many shipments of wax have been delayed too late in the spring. Some hold it anticipating a rise in price, and others do not get around to making shipment as promptly, perhaps, as they might. In order to stimulate early shipments we advance the price we pay to the highest point it has reached in years, and is likely to reach this year. We will pay 24 cents cash, 30 in trade, for average wax delivered here, until further notice. Be sure your shipment is marked so we may be able to identify it among others on arrival. Write us when you ship, giving the gross, tare, and net weight shipped. If you ship in a box, see that it is a strong one well nailed. If you have enough to fill a barrel, that makes the best package to ship in. If you ship a sack it should be double, and extra strong. You can better afford to be careful in shipping than to lose several pounds on the way.

Special Notices by A. I. Root.

COW PEAS; ADVANCED PRICES.

We have only the Wonderful and Extra-early Black-eye. Price of Wonderful, 1 qt., 12 cts.; by mail, 15 cts. more; peck, 75; $\frac{1}{2}$ bushel, \$1.35; bushel, \$2.50. Extra-early Blackeye, $\frac{1}{2}$ more than above prices.

This latter will ripen seed almost anywhere in the North, but it does not produce anywhere near as large an amount of feed, either for stock or to turn under. Both kinds will, however, produce sufficient bloom to furnish considerable quantities of honey in favorable localities. Leaflet mailed on application.

SEED POTATOES—REDUCTION IN PRICE OF NO. 1 BY THE BARREL.

We have reduced the price on our first-quality potatoes by the barrel from \$1.00 to \$3.50. Prices by the bushel and less will be the same as given heretofore. Price of seconds will be \$2.00 per barrel, as heretofore. Those who have paid us \$4.00 per barrel, either last fall or during the winter, can have a rebate of 50 cts. per barrel if they will give us notice of the fact.

Our seed potatoes, seconds, of Triumph, Bovee, and Sir Walter, are all sold out. We have, however, plenty of both firsts and seconds of all the other kinds mentioned on page 73, Jan. 15.

A DOLLAR POULTRY-BOOK TO EVERYBODY WHO SENDS US \$1.00 FOR GLEANINGS AND ASKS FOR NO OTHER PREMIUM.

This book is the same thing we have been selling largely for several years past. All things considered, I do not know but I should recommend it as being the best poultry-book we have. But this edition we give away is printed on cheaper paper, with heavy paste-board covers. The covers, however, are embellished with pictures of poultry in bright colors, making it a most attractive book to have around. By taking a large quantity we get them of the publishers at a very low price, with the understanding they are to be given as premiums only to our subscribers. They are not for sale at any price. The book contains 322 pages, and is full of illustrations. Remember, everybody who sends us \$1.00 for GLEANINGS, past, present, or future, can have the book by asking for it, and sending postage, which is 6 cts.

JAMAICA SORREL; DID ANYBODY SUCCEED WITH IT?

We did not succeed in getting any "fruit" from our Jamaica sorrel last fall, although we had great sturdy plants two or three feet high. Perhaps we gave it too rich soil, and it grew with too much luxuriance to blossom early. No doubt the trouble was it was not started early under glass as we start tomatoes. Just now, Feb. 7, we have some plants up and growing nicely in the greenhouse. Will those who tried Jamaica sorrel please report? We have some seed left, at 5 cts. a packet. I am anxious to know whether it can be grown in the Northern States as well as in Florida.

THE PRIZEWINNER FIELD BEAN.

I have told you that in 1900 I grew of this variety two crops of mature dry beans on the same ground in one season; and the second crop was from the seed gathered from the first crop. I do not know how many days it was from the time of planting to the mature ripe seed. Last year I sent a few of these beans up to my Michigan ranch, to be planted. I find the letter was written May 22. My boy must have planted the beans near our "cabin in the woods" very near the first of June—may be a day or two sooner. There was a row perhaps two rods long. My neighbor, James Hilbert, wrote me as follows, Aug. 28:

I was surprised at the peach-trees and beans. Those two rows of beans that are by the house are just loaded. An acre like that would just sell out 40 bushels; they are almost ripe. I am going over and gather them when ready, then I can sell you some "seed beans."

I wrote him at once to gather all there was dry enough for seed, if he wanted any, and he did so, probably, about Sept. 1. From the above we gather that these beans, from the time they were planted until they were dry enough to gather, were only just about 90 days in growing, and this in the comparatively cooler locality of Northern Michigan. There has always been trouble there about getting beans to ripen before frost or wet weather; but with the Prizewinner there certainly can be no trouble any seas n. Mr. Hilbert gathered about a peck, and Mrs. Root and I picked a good many afterward; and I still say, as I said the year before, they are the best table bean, to my notion, there is, not even excepting the limas. They are also the best yielder for a field bean I have ever tried, both here in Ohio and in Northern Michigan.

We expect to plant a lot of them around that cabin in the woods. So far as we have tried them, they bear planting very thick in the row. I do not think those I have mentioned could have been more than two or three inches apart. Our boy planted them as he would early peas. From one single stalk we shelled out 152 dry beans, if every stalk had yielded like that, we ought to get 150 bushels from one bushel planted.

As there has been a big demand for the bean ever since it was brought out, the price is still pretty well up. We have secured, however, ten bushels of seed which we will sell as follows: $\frac{1}{2}$ pint, 8 cts.; pint, 12; quart, 20 (by mail 24 c); $\frac{1}{2}$ peck, 60; peck, \$1.25.

THE FLORIST'S MANUAL: A NEW BOOK ON FLOWERS AND GREENHOUSE MANAGEMENT.

I have just been made happy by getting hold of a magnificent volume of 225 pages, 9x11 $\frac{1}{2}$. The book is full of pictures, sometimes several on a page, and it is planned exactly after the style of our A. B. C. book. It commences with "Abutilon" and ends with "Zinnia." These alphabetical heads name almost every plant known to florists—that is, commercial florists; and there is a splendid picture of every thing of note to be found in the greenhouse. Not only are plants fully described, but all the different operations of the greenhouse; and with all the other good things about the book, the writer is an exceedingly practical man, and has a comical way of telling you how every thing is done, in a way that makes the book interesting to everybody. Let me give you one illustration. I wanted particularly to know about *potting*—potting soils, making cuttings, and every thing belonging to the potting business. Well, when I had hunted the book pretty well through, and turned over to the last part, I found a heading, "Potting." This is what I read: "There is no chapter in this book that I started into with such a relish as this one. It is a treat. It is better than falling off a log." How vividly this brought to mind the time, some 25 years ago, when I was writing the A. B. C. book! There were certain chapters I did not feel just in touch with; and then other things—queen rearing, for instance—that I felt so familiar with I just rejoiced when I got along to that subject. Now, this writer goes on in this same vein of pleasant-

ry He goes over so explicitly every thing about this matter of potting plants, how to do it right, giving his reasons gathered from long years of experience, and sometimes pretty dear experience, that the book actually makes you feel as if you had a kind friend standing by your side telling you what to do and what not to do, and the whys and wherefores; and it is so all through. The only fault with the book that I know of is the price—\$5.00; but the beautiful pictures, taken in some of the finest parks of our great cities, are alone worth \$5.00 to me without any instruction. The book is a specimen of the high-st mechanical skill in the way of half-tones and printing that is in existence, so far as I know. I wish it were in my power to make the book cheaper for our readers who are interested in greenhouses, hot-beds, and cold-frames; but our discount is quite limited from the retail price I do not see how I can do any more than to offer you the book for \$5.00, including GLEANINGS for a year. If you have already paid for GLEANINGS quite recently we will mail you the book postpaid for an even \$4.00, and I think it is worth that for the wife and children to look at just to encourage them in making their own home more beautiful and attractive.

Just one more extract from the book, in regard to having your mind on your work:

You can't talk to a fellow-workman and intelligently and faithfully water a lot of plants in pots, much less syringe them. Your work needs all your thought and attention, and I will conclude this chapter by saying that a man who chatters or smokes at his work is of little use. Work in work hours, give all your mind to your work, and when the noon and evening hour come you will enjoy the rest far better than if you had been discussing your mother-in-law or last employer.

CONVENTION NOTICES.

The annual meeting of the South Dakota Bee-keepers' Association will be held at the City Hall in Yankton, South Dakota, on Wednesday, February 19th 1902.

The Committee is making special effort to make this meeting of interest to all who are any way connected with bees or fruit.

Let all who are interested in bees come and bring a friend with them. By order of

THE EXECUTIVE COMMITTEE.

Kind Words from our Customers.

I have lots of literature on tomatoes, but yours is the best and most practical of all.

WALPOLE NOCKOLDS.

Oakley, Tex., Sept. 21., 1901.

Inclosed find check for \$2.50, for which please credit me with subscription to GLEANINGS for two years, and send me a Post fountain pen. The pen I received of you two years' ago is just as good as new, although I carry it every day, and use it constantly.

Roselle, Iowa, Dec. 16.

I. W. HOFFMANN.

HAND POTATO-PLANTER—ONE MORE REPORT FROM IT.

I got a hand potato-planter of you last summer, and it worked like a charm. I plowed in a heavy crop of grass and weeds so we had to have a chain to pull it in the furrow. Being so much plowed under it could not be furrowed out; but the planter put them in in good shape, although ours is clay land. S. MINCH.

Divide, Oregon, Feb. 15.

Too dry in Iowa for bees. My bees averaged 24 lbs. I have 30 colonies. They are in the cellar. I have wintered in the cellar two winters, and have not lost one colony, and am a green hand with bees. But I had good help in the A B C and GLEANINGS. I like Home Talks. I am thankful to A. I. Root for his talk on tobacco, for it broke me of using it.

Griswold, Iowa, Dec. 20.

W. P. WILLOW-GHBY.

[Thank God for your concluding sentence, friend W. Can we not have some more such testimony?]

I inclose 12 months' subscription to GLEANINGS. Gentlemen, I can not find words to express the satisfaction that I have received by reading GLEANINGS—not only from the amount of information I have received on bees, but from Our Homes. I often feel, when reading them, that I would like to have the

pleasure of shaking hands with Mr. A. I. Root, and asking him to have a cup of tea with me.

JOHN H. JENKINS.

Wellington Gardens, Sandy Bay, Tasmania.

A QUEEN FREE.

Our stock is the very best that money and experience can procure. Just give our stock a trial and be convinced. We will give one warranted queen free in July for every order for one dozen queens before May 1, in order to have you try our stock. Prices: Untested, each, \$1.00; 6 for \$5.00; 12 for \$9.00. Select tested, \$2.50. Tested, \$1.25. Two-frame nucleus and warranted queen, \$3.00; three-frame nucleus and queen, \$3.50. Send for our catalog of bee-keepers' supplies and our price list of Italian queens and nucleus colonies, with description of our strain of bees.

PRESTON STORE & PRODUCE CO.,

Dority, Preston Co., W. Va.

White Wyandottes!

Bred from Dustin's best. Some fine cockerels on hand already to ship.

J. F. MOORE, : TIFFIN, OHIO.

ROOT'S GOODS

IN CENTRAL MICHIGAN. Best goods; best shipping-point; cheapest place to buy in state. Try me. List. W. D. Seper, Rt. 3, Jackson, Mich.

Orders are Now Being Booked

for queens of my improved selected strain of golden Italian business bees. Queens are very carefully reared. We aim to have none but the best. Our old customers stay with us. We use them right. Write for circulars.

J. B. Case, Port Orange, Fla.

If You Want Root's Goods

we have them at Root's prices.—Also A B C in Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

D. Cooley & Son, Kendall, Mich.

1200 FERRETS. All sizes; some trained; first-class stock. New price list free. N. A. KNAPP, Rochester, Lorain Co., Ohio.

Angora Goats

are handsome, hardy, profitable. Prize stock; low price; circular. ED. W. COLE & Co., Kenton, O.

WANTED.—A buyer for my 20-acre tract of land in Benzie Co., Michigan, at \$100 per acre, or \$350 per acre if paid before April 1st, 1902. 100 acres mostly cleared; fine rout-brook; 4 miles from railroad station; 2 miles from church; ½ mile from school-house. Land on nearly all sides of it have found recent sale at higher prices, but I am anxious to sell.

W. A. HOBBS, Traer, Iowa.

WANTED.—Bryan Edwards' History of the West Indies. State year of publication, number of volumes, condition, and price wanted.

A. L. BOYDEN, Medina, Ohio.

WANTED.—Honey; car lots or otherwise. Will send man to receive when sufficient amount to justify, and pay highest market price, spot cash. Address, stating quantity, quality, and price desired at your station.

THOS. C. STANLEY & SON, Fairfield, Ill.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,

199 South Water St., Chicago, Ill.

FOR SALE.—Extracted honey from alfalfa, in 60-lb. cans, tinted or white, 7 cts. a lb. Also honey in small friction-top pails. M. P. RHOADS, Las Animas, Col.

FOR SALE.—Choice amber comb honey, in 24-lb. cases, at 11c. EDW. WILKINSON, Wilton, Wis.

FOR SALE.—A quantity lot of well-ripened clover honey in 60-lb. cans. B. WALKER, Clyde, Ill.

QUEENS, QUEENS

Old Standbys.—The A. I. Root Co., to whom we have sold queens for many years, wrote us last May, thus: "Are you running low on queens? We hope not, as you seem to be our standbys. Send us 24 per week instead of 12, till further orders."

Beat Any Thing He ever Saw.—The Cyprian queens you sent me last year beat any thing I ever saw rearing brood and filling their hives with honey.—J. Nielson, Huntington, Utah, Sept. 4, 1901.

Is Great.—The nucleus you sent me last fall is great—the finest queen that ever crossed the plains. Please duplicate her this time. Mr. Jordan says the nucleus you sent him cast two fine swarms.—G. R. Warren, Fruitvale, Cal., May 12, 1901.

\$50 Queens.—My nice queen that you sent me, and I put in a hive with a handful of bees on the 6th day of last June, has now nearly filled her 30-lb. super for the third time. No man's \$50.00 bill could take her. Please send me another one like her as soon as possible, and keep a dozen ready for me like her for the 20th of April next, and I will make you a nice present.—M. Brown, Station A, Little Rock, Ark.

We breed Italians, Cyprians, Holylands, Carniolans, and Albinoes, in separate yards, 5 to 20 miles apart. Prompt service. Safe arrival guaranteed. Fees by the pound, nucleus, full colony, or by the carload.

Prices: Tested, \$1.50 each; \$8.00 for six; \$15.00 per dozen. Untested, February, March, April, May, \$1.00 each; \$5.00 for six; \$9.00 per dozen. Fine breeders, \$3.00 each. Send for our catalog, free by mail; tells how to rear queens and how to keep bees for profit.

Agents for Dadant's Foundation and *Gleanings*. Premiums given. Don't fail to get our printed matter. It's ALL free. Bee-supplies of all kinds.

The Jennie Atchley Co., Beeville, Tex.

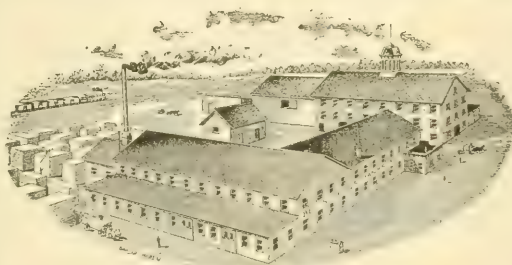
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Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,

Wetumpka, Elmore Co., Ala.



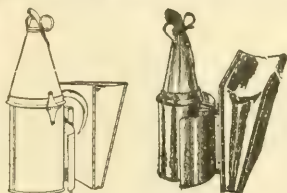
Kretschmer Mfg. Co., Box 60, Red Oak, Ia.

BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

— AGENCIES —

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Ia.
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,

HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A. No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

CHICAGO.—There has been a decline in the market on comb honey of one cent per pound since the month came in. Best grades of white now sell at 14; sales chiefly at 13½, with some western choice at 13. No buckwheat comb offered, and other dark grades are meeting with little attention; prices range from 9 to 12. Extracted is steady; white, 5½@7, according to quality and what it is gathered from; ambers, 5¼@5¾; off grades, 5. Beeswax wanted at 30.

R. A. BURNETT & Co.,
Feb. 18. 199 South Water St., Chicago, Ill.

SAN FRANCISCO.—No change in prices since last quoted. Raining throughout the State at this date. My bees are at work on alders, willows, buttercups, "Johnnie Jumpers," and manzanita.

Feb. 12 E. H. SCHAEFFLE, Murphys, Calif.

BUFFALO.—Demand for honey is pretty slow, and still there is demand enough to take all that arrives, at the following prices: Fancy white comb, 15@16; A. No. 1, 14½@15; No. 1, 13½@14; No. 2, 12@13; No. 3, 11½@12½. White extracted, 6@7; dark, 5@5½. Beeswax, 28@30.

Feb. 19. 84, 86 West Market St., Buffalo, N. Y.

SCHENECTADY.—There is but very little demand for comb honey. We quote fancy white, 15; No. 1, 13@14; buckwheat, 12@13. There is considerable demand for dark extracted, with no stock on hand. We quote light 6½@7; dark, 6@6½.

Feb. 18. CHAS. McCULLOCH,
1 Eagle St., Schenectady, N. Y.

ALBANY.—Honey market bare of any kind of comb honey. Clover, 15@16; buckwheat, 13@14. Extracted buckwheat, 6@6½. Light demand for light extracted. Beeswax wanted at 30c.

Feb. 22. MACDOUGAL & Co.,
380 Broadway, Albany, N. Y.

MILWAUKEE.—This market does not present any new or very interesting features as regards the honey trade. The very low prices which have characterized the sugar supply, and the good supply of extracted honey, have evidently had an effect on the appetite of consumers of honey, and sugar has dominated the choice, and sweet, sweet honey is behind in the race for the race; yet we advise shipments of comb honey, as the supply of choice is small. We now quote fancy 1-lb. sections 15@16; A. No. 1, 14@15; amber, nominal, 13@15. Extracted, in barrels, kegs, and cans, nominal, white, 7@8; amber, 5@6. Beeswax, 26@28.

A. V. BISHOP & Co.
Feb. 20. 119 Buffalo St., Milwaukee, Wis.

CINCINNATI.—The honey market has been rather dull this year. Comb honey is selling fairly, and brings as follows: White clover, 15c; lower grades, 12½@14. Extracted honey sells very slow, the lower grades bringing 5@6; fancy, 6½@7½. Beeswax, 28@30.

C. H. W. WEBER,
Feb. 19. 2146 Central Ave., Cincinnati, Ohio.

DENVER.—No. 1 white comb honey, \$2.75 to \$3.00 per case of 24 sections; No. 2, \$2.25 to \$2.50. Extracted, 7@7½. Beeswax, 22 23.

COLORADO HONEY-PRODUCERS' ASS'N.,
Feb. 24. 1440 Market St., Denver, Col.

FOR SALE.—Choice amber comb honey, in 24-lb. cans, at 11c. EDW. WILKINSON, Wilton, Wis.

FOR SALE.—A quantity lot of well-ripened clover honey in 60-lb. cans. B. WALKER, Clyde, Ill.

FOR SALE.—8000 lbs. fancy and No. 1 comb honey. WALTER MARTIN, Globeville, Colo.

FOR SALE.—Extracted honey from alfalfa, in 60-lb. cans, tinted or white, 7 cts. a lb. Also honey in small friction-top pails. M. P. RHOADS, Las Animas, Col.

FOR SALE.—Whitest alfalfa honey, \$9.00; tinted, \$7.50, per case of two 60-lb. cans, net.

ARKANSAS VALLEY APIARIES, Las Animas, Col.

Texas Queens!!

FROM THE

Lone Star Apiaries.



G. F. Davidson & Son, proprietors, have made great preparations for the coming season to accommodate their many customers with either Long-tongue, Imported Stock, or Golden Queens. They have bought out the queen-rearing business of O. P. Hyde & Son, of Hutto, Tex., and by buying more bees and increasing their number of nuclei, they are better prepared than ever to cater to the trade of the bee-keeping public. One of Root's Long-tongue Breeders; Imported Stock direct from Italy; Goldens from leading queen breeders. Fine breeders of each of the above have been added to their yards. Safe arrival and satisfaction guaranteed. Send for queen circular and price list. Address

G. F. Davidson & Son, Box 190, Floresville, Tex.

Do You Need Early Queens?

We can supply you from a fine strain of Italians which has no superior. Choice tested queens by return mail, \$1.00 each. Satisfaction guaranteed.

J. W. K. Shaw & Co., Loreauville, Iberia Co., La.

There is money in poultry. See advertisement of Sure Hatch Incubator on page 207.

Satisfied Customers,

and their numerous expressions of the superiority of my queens warrant me in continuing the arrangement of my queen apiaries in 1902 as in 1901. I have watched carefully, and have selected the queens whose colonies gave me the best results in HONEY, for my queen and drone mothers.

Yard No. 1 consists of a combination of the **Root Long-Tongued Clover Stock**, the **Superior Stock** so much Advertised by Hutchinson, and a **Selection of My Own Stock** that I have been Breeding for years, in regard to which I have the following:

Buffalo, N. Y., Aug. 31, 1901.

My Dear Victor:—Queen and nucleus arrived safely yesterday; made entrance to nucleus and allowed them to fly yesterday. Transferred them to a Dovetailed hive this morning, *without smoke, and handled them, patting them on the back*, and I never saw such quiet and docile bees. If their working qualities are as superior as their handling, I am prepared to say you have the best bees I have ever met with, which would include some 25 or 30 different breeders, and all the well-known races.

Yours very truly,

OREL L. HERSHISER.

The colony of one of the queens I have selected for a breeder in this yard gathered right about 400 pounds of honey last season. I have not measured her bees' tongues, but they are ALL RIGHT, LONG OR SHORT.

Yard No. 2 consists of imported Italians, daughters and granddaughters. For further description see ad. later. Testimonials on application.

Yard No. 3—GOLDEN BEAUTIES or 5-banded Italians.

I am now booking orders for spring delivery; first come first served.

Untested queens: 1, \$1.00; 6, \$5.00. Select untested queens: 1, \$1.25; 6, \$6.00. Tested queens: 1, \$1.50; 6, \$8.00. Select tested queens: 1, \$2.00; 6, \$11.00. Breeders, \$3.00 to \$7.00. See circular for specifications.

ROOT'S GOODS AT ROOT'S PRICES, plus carload rate freight.

W. O. VICTOR, Queen Specialist, Wharton, Wharton Co., Texas.

I. J. Stringham, 105 Park Pl., New York City.

Save Money!

You want the best supplies at as low a price as possible. If you are anywhere in the EAST we can furnish you, and it will be to your advantage to get our 1902 catalog. There are "special offers" in it. Remember, we furnish EVERY THING a bee-keeper needs. Apiaries located at Glen Cove, Long Island.

Marshfield Manufacturing Company.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE SUPPLIES. Write for FREE illustrated catalog and price list.

Marshfield Manufacturing Company, Marshfield, Wisconsin.

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[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

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Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

Queens That Please.

J. W. Dickson, of Westminster, S. C., writes: "Send me two more queens by return mail. I prefer your bees to any that I have seen." Other beekeepers say equally good things of them. See ad. for Feb. 1st as to my breeders. I can serve you promptly with Doolittle's red-clover or Root's leather-colored stock. If you need early queens it will pay you to write me.

GEO. J. VANDE VORD, Daytona, Fla.

HONEY QUEENS!

Laws' Long-tongue Leather Queens.

Laws' Improved Golden Queens.

Laws' Holy Land Queens.

Laws' queens are the standard-bred queens of America. The largest honey-producers use them and praise them. Laws' queens go everywhere, and can furnish you a queen every month in the year. Four apiaries. Queens bred in their purity. Prices, October to April: Tested or untested, \$1.00 each; 6 for \$5.00. Breeders, none better, \$3.00 each. Address

W. H. Laws, Beeville, Texas.

EGGS from all varieties of fancy chickens FREE. Send 10c for a trial subscription to our 16-p. journal if interested in fowls, and get our FREE-EGG plan. Address The Farm & Poultry News, Box 702, Middlesboro, Ky.

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Retail—Wholesale—Jobbing.

Having increased my shop-room, put in power and a new set of machines, I am now producing a better article than ever, with unlimited capacity to meet orders. I use a process that produces **every essential** necessary to make it the **best and most desirable** in all respects. My **process** and **automatic machines** are my own inventions, which enable me to sell **foundation**, and **WORK WAX INTO FOUNDATION FOR CASH**, at prices that are the lowest. I make a specialty of working up Wholesale and Jobbing Lots of wax into foundation, for cash. If you have wax by the 100 lbs. or ton, let me hear from you. Catalog giving

FULL LINE OF SUPPLIES

with prices and samples, free upon application. **BEESWAX WANTED.**

Cus. Dittmer,

Augusta, - Wisconsin.

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With cable communication and equable winter temperature of 70 degrees, is reached in 48 hours from New York by the elegant steamers of the Quebec Steamship Company, sailing every ten days up to January, and then every five days. The situation of these islands—south of the Gulf Stream—renders

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Full line of all supplies manufactured by us.
Low freight and steamship rates to all points on
Atlantic Coast. Order early, be ready for spring.

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If you have not been receiving a copy annually, send us your name and address, and one will be mailed to you free.

Special Offer.

To parties sending us an order for supplies amounting to \$10.00 or more at regular prices we will make following low rates on journals:
Gleanings in Bee Culture, semi-monthly, 1 year, 50c.
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AGENCIES: L. C. Woodman, Grand Rapids, Michigan; Fred W. Muth & Co., Southwest Corner Walnut & Front Sts., Cincinnati, Ohio; Fred Foulger & Sons, Ogden, Utah; Colorado Honey-producers' Association, Denver, Col.; Grand Junction Fruit-growers' Association, Grand Junction, Colorado; Robert Halley, Montrose, Colorado; Pierce Seed and Produce Company, Pueblo, Colo.; E. T. Abbott, St. Joseph, Missouri. Special Southwestern Agent, Charles Dadant & Son, Hamilton, Illinois; F. C. Erkel, 515 First Ave., N. E., Minneapolis, Minnesota; Lilly, Bogardus & Co., Seattle, Washington, Special Northwestern Agents.

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A JOURNAL DEVOTED
 TO BEES
 AND HONEY
 AND HOME
 INTERESTS.

ILLUSTRATED
 SEMI-MONTHLY
 Published by THE A. I. ROOT CO.
 \$1.00 PER YEAR MEDINA, OHIO.

VOL. XXX.

MAR. 1, 1902.

No. 5.



BEES AND POULTRY have had a somewhat prominent place in GLEANINGS, and now a swine department is added. See last article p. 140.

SINCE READING that wax-worms would not eat into basswood lumber I have met positive violations of the rule, for there was no question about their eating into the wood in many places. Whether they would have done any worse on pine I do not know.

THE DUTY on honey from Canada to this country is $1\frac{1}{2}$ cts. per lb.; but President Newton, of the Ontario Association, thinks it will pay to gain a market here at that rate. If so, then American bee-keepers ought hardly to grumble at a better price of $1\frac{1}{2}$ cts. a pound.

ALFALFA, 150 acres of it in one locality, reported in Canada, p. 151. The question is, does it produce honey there or any other where east of the Rockies? [Yes, I should like to know where there is a field of alfalfa, outside of the irrigated regions, that yields honey. So far I have yet to hear of one.—Ed.]

THE REASON given why drugs will do more to cure foul brood in Europe than here, and why they are more immune to the disease, is that they have had the disease longer, and it has lost something of its force. A disease is likely to be at its worst in a locality where it has never been before.

YE EDITOR, page 139, speaks of being months behind on copy. Well, there's one good thing about that; sometimes they hold on to an article of mine so long that I've nearly forgotten about it, and then I can stand it to read it myself. [Perhaps I had better "let the cat out."] The fact is, it is easier to impose on a friend than on one who might be a violent kicker. There, I guess I will not say any more.—Ed.]

I WONDER how much I could collect from the A. I. Root Co. if I should sue them for damages because they did not sooner get out the German wax-press. Since using one I feel sure that, for want of it in past years, I have suffered no little loss. [We had asked the doctor to criticise and smash the machine if he could. He may tell a different story later.—Ed.]

"OCCASIONALLY a cluster appears slightly active, but the next time this is quiet," says R. F. Holtermann, p. 152, about bees in cellar. I've often wished I had the leisure to spend 24 hours in the cellar listening to the bees. I think I've had some evidence that each colony has its stated spell of activity, "turning over in bed," if you please. [It almost seems that our bees under the machine-shop never "turn over in bed." See editorials.—Ed.]

PLEASE ALLOW a remark by way of appendix to a reply, page 155. When, at the beginning of the harvest, a colony which has had two stories is reduced to one story for brood, with plenty of storage room above, and the eight combs fullest of brood are left, the queen is by no means greatly restricted. She has the whole of eight frames to lay in, and that is likely to be as much as she would occupy after the harvest begins, even if she had two stories. She may swarm, but hardly on account of the reduction to one story.

NOWADAYS the bellows of smokers have grooves cut in the boards to make them easier to hold. So far, good. But the rounding edges leave something to be desired; and if you want entire satisfaction take W. L. Coggs's plan and nail on a little cleat $\frac{1}{4} \times \frac{1}{8}$ or $\frac{1}{4}$ square. That sharp edge is what holds, so there is no danger of the smoker dropping out of your hand. [I do not know how dauby you let your fingers get; but if one allows them to get smeared much with honey it is almost impossible to get a good grab on any thing. I take it that you have slippery hands when you handle a smoker. Say, doctor, if you can not find a pail of water handy, rub your fingers in the dust a little bit. That is the way

the Californiites do, and that is the way I had to do when I turned in and helped them out on extracting on one or two occasions. Smoker cleats—yes, I suppose they might be a help for “slippery fellows” like you and Coggs shall.—ED.]

G. M. DOOLITTLE says, in *Am. Bee Journal*, to allow 10 cubic feet for each colony in cellar wintering, which is probably right. I have now 235 colonies in a room which allows 9½ feet for each colony when the door is closed. Except in very cold weather, however, the door is open into the adjoining room, which gives each colony 15 cubic feet. [We do not allow that amount in the room under our machine-shop; but we secure in effect the same results by having doses of fresh air administered just often enough to keep the air sweet and the bees quiet.—ED.]

IN REGARD to making nominations for Directors before election, why not let well enough alone?” page 144. That’s just it, Bro. Elwood. I’ve been a Director ever since the first organization of the old Union; and unless I murder some one I’m pretty sure of the office as long as I live. You see, no matter if three-fourths of the voters would rather have some one else, without any previous nominations there’s no chance to agree upon any one, and I’m sure to win out. But say, Bro. Elwood, you’d better keep mum, and not let the thing be talked up, or I may yet lose my job.

THE CALIFORNIA ASSOCIATION, according to a report in *Am. Bee Journal*, has 11 members with 9000 colonies, and 48 members enter the National in a body. Something must be done to keep those California fellows under. [We of the East do not need to do any thing to keep these “fellows under.” The long-hoped-for rains have not yet come, although they had little spurts a few days ago. Their honey will not be much in evidence next year unless it is last year’s held-over crop. Poor fellows! They have got misery enough without us Easterners wishing them any thing bad.—ED.]

IN ANSWER to a question, p. 136, it was Langstroth, beyond all doubt, who gave us the first practical movable frames, and just as truly as he invented them did Dzierzon really invent movable combs. [But is it really and truly settled that Dzierzon invented movable combs? If I remember correctly, when the matter was up there were several others who held priority. But undoubtedly Dzierzon did bring movable combs into use. Marconi, perhaps, did not invent wireless telegraphy; but he so perfected the inventions of others that what was impractical and useless is one of the successes of the age—a wonderful success.—ED.]

WM. CRAIG sends me a honey yarn that is the heaviest yet. The *Detroit Tribune* quotes it from the Durango, Col., *Herald*. With steel drills and blasting powder they are *mining* the honey, for there are “probably 4,000,000 pounds of honey—honey in

all the crevices, recesses, and holes in the rocks for miles in every direction.” [Such yarns as these are comparatively harmless; but it is the kind that the papers have been rehashing—the old story about manufactured comb honey, that makes us bee-keepers fairly boil with rage. I am inclined to think now that some of the sheets that published this nonsense wish they had never seen a bee-keeper nor heard any thing about manufactured comb honey.—ED.]

“HONOR to whom honor is due.” The “infallible” plan of queen introduction mentioned on p. 9 as the Wood plan turns out, like many another thing, to be nothing new. In that very excellent work written by S. Simmins, entitled “A Modern Bee Farm,” the plan will be found given on p. 160 of the 1893 edition. Mr. Simmins also emphasizes the importance of giving to the queen only honey from the same hive. Tardy credit should also be given to Mr. Simmins for the idea of bleaching sections white, which may be found on p. 139 of the same work. [I think you are correct; and when the article appeared I thought there seemed to be something about the method that was familiar, but I could not call it to mind then.—ED.]

BRO. A. I. ROOT, p. 156, says some folks think there is no personal Devil. If such a person is lacking anywhere, I assure you it’s not “in this locality.” [Say, doctor, do you believe this is a question of locality? I think I have run across him everywhere I have been in the United States. Perhaps I did not see his visible tracks, but if I remained long enough I could find traces of him. Do you know that, while I was away, I made a *business of visiting saloons*? Yes, I went into all I could find or had time to visit. As I was a stranger I could go around unmolested, and see just how his Satanic Majesty manages to catch his victims. And if any one thinks there is no personal Devil I wish he would go through some of the western saloons. There are too many people in this world who are utterly ignorant of the awful iniquity that is concocted in these hells of Sodom. I make the recommendation that some of our friends who are indifferent to this temperance question just make a run through the drinking-places at night in any of our “wide-open” cities. They will then think there is a Devil sure.—ED.]



Columbia greets Germania's prince
With friendly hand and true;
We've naught to fear when crowned heads hail
The red, the white, the blue.

That song for bee-keepers, music by G. W. York, words by Eugene Secor, “Buck-wheat Cakes and Honey,” was received

just as the familiar thump, thump, thump of the family batter-paddle was doing its work in making such cakes, rendering the song very appropriate. It is good all through, and all who have music in the house should have a copy.



REVUE INTERNATIONALE.

In speaking of the difficulties of bee-keeping in Tunis, Africa, Mr. Bourgeois paints a picture that throws Arizona in the shade. He says the work is very hard and long. One has to construct a cabin, or barrack, make foundation, hives, fill them with bees, etc. If he has bread to eat he has to go 12 miles for it; wine, 16 miles; fresh vegetables, 38; fresh water can be had only by going several miles for it. He intends to install 1000 hives during a period of three years, the estimated expense of which will be about \$4640. He has rented about 1900 acres for this purpose. The principal sources of honey will be heather and a plant called in French romarin, the latter of which is spoken of in another paragraph.



Concerning a new treatment for foul brood, Mr. Edmond Bochaty says:

"Having noticed last summer in Tunis, where I was managing an apiary of over 500 hives, that, during the blooming of romarin, an abundant and very mellifluous plant, the condition of several foul-broody hives was noticeably improved, I conceived the idea of treating the disease with the essence of romarin, well known for its valuable antiseptic qualities. The results obtained in Tunis by this new process were excellent; and to convince myself of its efficacy, after my return to Valais I applied the treatment to three foul-broody hives. At the end of three weeks, although the disease had gained a strong foothold, it was not possible to find a single diseased larva in those hives. The cheapness of the essence of romarin, which one can find at any drugstore, and the ease of applying the remedy (you have only to pour 15 or 20 drops of the essence every 3 or 4 days in the corner of a hive to effect a complete cure) will admit of every bee-keeper trying this plan."

This plant is known in English as rosemary. It belongs to the mint family, and is certainly a powerful disinfectant.



I guess nobody in Europe will feel hurt if it is said that Mr. Ed. Bertrand's journal is the greatest representative of the bee industry in Europe. Among those in the same rank I would mention *Le Rucher Belge* and the late C. J. H. Gravenhorst's *Illus. Bienenzeitung*. Regrets having been sent in relative to Mr. Bertrand's ill health and probable retirement from work, he says, in his January issue: "Several have expressed regret at seeing the journal no longer in my hands. They are wrong in

supposing I have less to do with it than before. . . . I remain at the head more than ever; and my health being better, thanks to God, I am still permitted to be the director of my editors. With this in view I have the pleasure of announcing that the son of Mr. Charles Dadant, who for a long time has participated in the work of his father and that of the bee-keepers of France and Switzerland, and who was a delegate from the United States to the Congress of Bee-keepers in Paris, in 1900, will henceforth take a part in the regular editorial work of the *Revue*. The bonds that have already united the *Revue* to the name of Dadant are well known. This new and intimate collaboration, which will be aided by the counsels of the senior Dadant, will permit us, among other advantages, to follow closely the bee-keeping movement in the United States."



In reviewing Mr. Reidenbach's celebrated treatise on foul brood, Mr. Ulrich Gubler says:

"This work is the result of numerous experiments, and shows a very profound study of antiseptics. Without knowing any thing about the labors of his predecessors, he arrives at very nearly the same conclusions; but he introduces, nevertheless, a new element in this important question. In the salivary glands of the bees and in the larval food there will be found a substance of which no author has yet spoken; and that is, tartaric acid—an antiseptic of the highest order. According to him, the royal jelly contains from 3 to 4 per cent of it. This acid is transformed in the cells into formic acid. Bees fed on honey produce of it, according to the author, much more than those fed on sugar syrup. For this reason the former are much more able to resist the ravages of foul brood than the latter, which are easily affected. Mr. Reidenbach says the bacillus of foul brood has not yet been determined, and do one has as yet undertaken its culture. This is an error. Mr. Harrison has made a culture of *Bacillus alvei* in jelly, in gelatine, and different kinds of broth, and he has determined its size very accurately."

This has been done many times in this country.



IS PURITY THE CHIEF ESSENTIAL WITH THE HONEY-BEE ?

The evening mail brought a letter from a man in the northeast corner of the United States (Maine), he desiring a little chat with me on the purity of bees, he beginning the conversation with me something after this fashion:

"I see much in the bee-papers about the purity of bees. What do you think in the matter?"

"Yes, much has been said in the years that are past about a standard of purity for our bees; and some of the practical bee-keepers of the country have been led to ask the question, 'Can we adopt a standard of purity that will always secure to us the best working qualities in our bees?'"

"Did they receive an answer?"

"I do not remember any one fully answering that question in print; but I remember one of our most practical men saying in a bee convention once that he could see that it would be easy for those who follow nothing but queen-breeding as a business to adopt a standard of purity, or secure something which would be called thoroughbred at least. But he thought that, for the rank and file of the honey-producers of the country to adopt the same standard, would be quite another thing."

"Why did he talk like that?"

"I do not know that he told the *why*; but I suppose his reason was that the workers from different queens of the same color and general appearance show a vast difference as to their working qualities."

"Has such been your experience?"

"Yes. And I think the same has been the experience of hundreds if not thousands of others."

"Will you tell me something of this experience so that I can understand how you have worked, and from this gather a course of work for myself?"

"I did not pay very close attention to the improvement of my bees until the year 1877. That spring, when changing a colony from one hive to another I noticed a very fine-looking orange-colored queen, with the workers all well marked. A neighbor, who happened to be present, remarked that he would prefer a darker-colored queen for business, and I agreed with his decision. No further notice was taken of the colony till just before July, when nearly every other colony in the apiary had swarmed but this one, and so I went to see why it had not swarmed, as it seemed fully as strong in numbers as the best of those which had cast swarms. This revealed about sixty pounds of section honey all ready to come off, while scarcely another colony had a single completed section."

"No wonder they had not swarmed. But did they not swarm that year?"

"Yes, July 3d they sent out a very large swarm which was hived in a separate hive. But that was all the swarming it did, although I never cut any of the queen-cells in the parent colony."

"What was the result in honey?"

"The parent colony gave 195 lbs. of nice section honey, and the swarm gave 114 lbs., or 309 lbs. from the old colony in the spring."

"Well, that was a wonderful yield, and I judge you thought more of that queen in

the fall than you did when you and the neighbor looked at her in the spring."

"Yes, you are right there. And I thought still more of her the following spring, for both the colony she was in, and that from her daughter, wintered with the loss of but few bees, while many of the other colonies came out spring-poor."

"What did they do the next year?"

"They showed the same disposition not to swarm till late; and from the colony with the old queen I obtained 151 lbs. of section honey, while there were very few other colonies that gave over 100 lbs."

"Did you consider this queen pure?"

"Not fully so. Nor do I consider any Italian queen as pure; but she was so good every other way that I then raised all of my queens from this old one, as long as she lived, and found that, while the majority of them did not duplicate their mother as to color and markings, they did do this very nearly as to their being good in every other way."

"After she died, what then?"

"I now began to procure queens from other parties who reported good honey-yields through our bee-papers, to cross with these bees, as in-and-in breeding was then considered to be very injurious to bees. But the most of these queens did not prove nearly so good as those I had, and so the growth in improvement was very slow, as I had to weed out these as soon as they proved inferior. Occasionally one would prove good, and was used in connection with this strain; but I have kept it very largely in the majority ever since."

"Do you think you have gained any in their purity?"

"No, I should not want to say that; but by this mode of working I have bred up a strain of bees that pleases me, and, after years of getting queens from other parties, I believe them to be second to none as honey-gatherers, although for purity I can give no guarantee, neither do I think it necessary to guarantee any positive purity of stock, except that it be good in every spot and place where you wish goodness."

"Then you do not think that purity of stock is the greatest essential in bees?"

"No. That is not what I am working after. But I am still striving to advance further along the honey-gathering line, so each year finds me securing queens from the most approved sources, although it is seldom I find one I care to use as a breeder; but as this 'seldom one' is of great value, I consider myself well paid for all my trouble."

"Then you like to work along this line of improving stock?"

"Yes. There is nothing in all the realm of bee-keeping that gives me more pleasure than does this work of improvement of stock for its honey-gathering qualities; and as we have at this time several of our most prominent apiarists at work on this greatest of all problems to the honey-producer, if perfection can be obtained with bees I

doubt not that America will stand at the head of the list. But I don't believe that that standing 'at the head' will be because of our *purity of stock*."



IN our next issue Rambler will begin his interesting series of articles on Cuba. We have some fine illustrations, and the story that Martin will tell will be an eye-opener.

THE *Rocky Mountain Bee Journal* published at Boulder, Colo., gives evidence of holding more than its own, notwithstanding it is only a year old. Its editor appears to be both a bee-keeper and a printer—a combination that is certainly very desirable. The field for a bee-journal in the great central West is certainly very large; and a good paper, devoted to the interests of the bees, will, as the years go by, find a good strong clientele. It is impossible for one paper, or half a dozen of them, to publish all the newsy items for all localities, with all their climatic differences, in this great country of ours, and GLEANINGS is always glad to welcome any new rival to the field, for there is room for all.

NO HONEY IN CALIFORNIA THIS YEAR.

THE California bee-keepers, especially those in the southern portion of the State, are very much discouraged. That little spurt of rain that I told about recently did not amount to much; and it is almost a certainty now that there will be but little or no honey in California the coming season, as every thing is drying up. What effect this will have on the honey market all over the United States can scarcely be estimated at this time. If California produced last year 200 carloads, and some say 300, and turned a large part of it loose on the East, what will be the effect on the market if next year it can not ship any? Certainly the price on extracted here ought to hold its own and a little more, whether we get a crop or not.

California will be no bonanza this year for bee-keeping home-seekers. The State will have more bee-keepers and bees than it can take care of.

THE PACKING-HOUSES AND THE BOARD OF HEALTH AT SAN FRANCISCO; GRANULATION NOT A TEST OF PURITY.

I LEARN from E. H. Schaeffle, who is, perhaps, one of the strongest champions of pure honey in California, that the packing-houses of San Francisco recently called on the Board of Health and asked to be allowed to add a *small* quantity of glucose to the honey which they put out, because, as they allege, it is not possible to keep the honey

liquid without the glucose. But, fortunately, the Board informed them that this was not possible under the law, and it is well they did, for, as the old saying is, if you give these packing-houses an "inch they will take a mile." If they were allowed to put in a *little* glucose they would make a "mistake" and mix 75 parts of glucose to 25 of honey, and then call it "pure honey."

And speaking of "mistakes," there never was a bigger one than that glucose will stop the granulating of honey. For experiment I once mixed glucose and honey in various proportions, let them stand, and they *all* granulated more or less. Glucose would, of course, remain liquid and show where it had separated from the pure honey. But pure granulated honey often has clear streaks through it just the same as the "doctored" stuff has.

BEES AND FRUIT.

THE following item, taken from the Red Wing, Minn., *Republican*, is one more link in the chain of evidence showing the almost indispensable offices of the bee in fertilizing fruit:

BEES AS PEACH-RAISERS.

At the Oregon station, experimenters forced a number of peach trees into bloom under a glass last November, and introduced a colony of bees into the house, first procuring one tree so that the bees could not get to it. From that tree all the fruit dropped when the stones began to form. From the other no fruit dropped and it was abundant.

I desire to say in this connection that we have quite a lot of leaflets that we are prepared to send out to our subscribers where they come in contact with certain disagreeable neighbors who persist in spraying their fruit-trees while in bloom and killing their best friends, the bees. They ought to understand that they can not afford to carry on so foolish a policy, if they consult their own interests; and if they are men who can be influenced at all by reason, these clippings that we are prepared to furnish when called for will convince them.

THE BIG GLUCOSE TRUST AND HOW IT PROPOSES TO BEFRIEND THE BEE-KEEPER.

FROM several clippings that have been sent in it appears that a new glucose trust is about to be or has already been organized with a capital of 80 millions of dollars, and will be called the Corn Products Co. It will "take care of all commodities made of corn, except meal, hominy, grits, and whisky." But its particular business will be the manufacture of starch and glucose. Several of the items referring to this trust go on to state that it will make an effort to "bring the cost of honey and maple syrup something near the price set by the bee and the maple-tree." This will be interesting if true. The object of this "trust," I trust, is to advance the price of its product. If so, I hope it will make it so high that it will not pay to use it in honey. But there is no likelihood that it will be thus considerate of the honey business.

The glucose interests have always been a damage to the bee-keeper. They reduce the price on what is called bottled honeys, by putting out a "doctored" product that is so vile that it disgusts the general public with *all* honey, good, poor, and bad.

We wish our friends the enemy success in advancing prices, providing that advance has a tendency to increase the value of honey. But our bee-keeping friends will do well to watch their efforts to "bring the cost of honey near the price set by the bee." If they are at this late day doing works of philanthropy they must have reformed. But they haven't, and they can't pull the wool over our eyes either. Glucose may advance several notches, and still be used profitably to adulterate honey.

Strange, strange it is, that, when the majority of the people, the big majority of them, are against the glucose business, laws can not be enacted at Washington and at the State capitals that will stop this nefarious business of glucose-mixing of a paltry few, and palming it off under honest names as pure goods. The trouble is, I suspect, that the glucose lobbyists are much more alert to their interests than the dear public are to the interests of their stomachs. The result is, no legislation in many States has been enacted; and even in one or two cases where good laws have been passed, somehow the very intent of the law is misconstrued by the very people who should see that it is carried into effect.

WM. STAHL ON SPRAYING FRUIT-TREES
WHILE IN BLOOM.

In spite of all the evidence furnished by the experiment stations all over the United States, and of private experimenters, showing conclusively that the spraying of fruit-trees while in bloom not only kills the bees, but is damaging to the best growth of the young fruit itself, Wm. Stahl, an extensive advertiser of spraying-outfits at Quincy, Ill., who is cognizant of these facts, is *still* sending out circulars urging every one to spray his trees *while in bloom*. By some misunderstanding in our office his advertising card was inserted in our columns; but as soon as I saw it I had it dropped out, and informed the advertising agency that we would not take his advertisement again under any circumstances or at any price.

Mr. Stahl has had any amount of evidence put before him, yet he persists in putting out, through thousands of circulars sent broadcast, advice that is hurtful to bee-keepers and fruit-men alike. None are as so blind as those who will not see. Stahl is offensive to bee-keepers in another way. He put out a statement to the effect that comb honey is manufactured. The animus of such a statement seems to be that he "has it in" for bee-keepers.

If I know the feelings of our readers, when they want spraying-outfits, they will buy of some one who does not openly and flagrantly run against their interests. As

publishers of GLEANINGS we regret exceedingly that his card ever found its way into our columns.

THOSE BEES UNDER THE MACHINE-SHOP.

HERE it is, very close to the first of March, and the bees under the machine-shop are still doing well. The number of dead from the 250 colonies so far during the whole winter, if swept up, would not fill a four-quart measure. Yesterday, Feb. 23, it was quite warm outside, and I went into the cellar to see how the bees were behaving. The door was wide open at one end, letting a flood of light in. The thermometer showed a temperature of 50; but so quiet were the bees that they did not even venture out. The cellar bottom, as I have before explained, is bone-dry; and the air in the room where the bees are is sweet enough for a human being. The winter has been so severe outside that we put in 50 more colonies from outdoors. Yesterday we noticed a few slight traces of dysentery from the bees in the yard, but in the cellar there is nothing of the kind that can be seen.

In our next issue I hope to present you a photo of the hives and the general arrangement of the cellar where they are located.

WANTED—A FOOL-KILLER; THE EFFECT OF
THE COMB-HONEY LIES.

THE following, from one of our subscribers, emphasizes what I have been trying to say right along—that, in spite of all the write ups and the retractions we have secured in some of the standard papers, perhaps three-fourths of the general consumers throughout the United States still believe that honey-comb is manufactured, filled with glucose, and capped over by machinery. So persistently has this lie been put before the public that it is going to take a long campaign of education to get the truth back into the minds of the people. Mr. Jones states a condition of affairs that I am afraid is only too true all over the United States in many localities. He writes:

Mr. Root:—Will you please send me a few of your cards on which you offer a reward for artificial comb honey? You would hardly credit it, yet it is a fact, the maia has struck this section. With your offer of reward, some missionary work may be done; still, it is hard to make them believe even then. I don't know but a wiser and more effectual remedy for the evil would be this: You send us a strong, hearty young fellow who would accept the position of "fool-killer" for this neighborhood and turn him loose to perform his office. As to salary, if he will do piece-work, and is industrious, surely it will amount to something munificent.

For mercy's sake, just look at this: Bartlett Springs is a fashionable health-resort. The very elite of San Francisco make it their summer home. Last summer a bee-keeper took there for sale a lot of honey. It was in sections, and would grade "fancy" and "No. 1." Did he sell it? No, sir—not one pound. "We don't want that kind of honey—you can't fool us," etc., *ad nauseam*. Did the bee-keeper urge it on them, and endeavor to explain? No, indeed, he did not, for he was a man "wise in his day and generation." What he did do was to go off and hunt up a lot of old rusty empty coal-oil cans, cut his honey from the sections, mix in a few leaves, rotten wood, etc., *womox* it all up in a mess, make some change in his own appearance, and go back with a lot of "wild honey" for sale.

Why, they just crowded one another to get to it. He couldn't weigh it out fast enough. "O Mrs. Newrich! is not this delicious?" "Why is it, Mrs. Goldbug, that we can not get such things in our markets?" "I can taste the very aroma of woods and wild flowers." "No glucose and paraffine about this," and so they went on until he had sold his last pound. Now, these are not ignorant people. They are the very best that we have—at least they are representative, and they believe it. I can see no solution to the problem unless the great dailies, the makers of public opinion, can be induced to take the matter up, and editorially show its glaring absurdity—either that or send out the fool-killer.

H. B. JONES.

P. S.—Since writing this I am struck with my own idea; and, to act upon it, I will at once write to the *Examiner*, of San Francisco, and endeavor to enlist them on our side. If they will take it up, all the Hearst newspapers will do so, and that means New York, Chicago, and San Francisco. Those papers do nothing in a half-hearted way, and what they undertake to explain will be ventilated thoroughly.

Arbuckle, Cal., Jan. 20

H. B. J.

Our readers are respectfully requested to keep up their campaign of education—that is, of letter-writing, sending articles to local papers, and telling the truth about their business, and showing that comb honey is not manufactured and can not be.

HOW TO CLEAN NEGATIVE GLASS.

MR. F. A. SALISBURY, seeing the editorial on p. 58, Jan. 15, corrects me by saying that my directions for cleaning negative glass would not lead to very satisfactory results, and then explains his method.

Mr. Salisbury says that it is very simple. He uses a common wash-boiler, and places in it two pails of water and a pound package of Babbitt's potash. After the water comes to a slow boil, he is ready to place the glass in. But instead of immersing it in bulk in every shape imaginable, it must be placed on wooden racks so that the water can get at *both* surfaces of *each* light of glass. For that purpose he uses a pine board 3 in. wide, and just long enough to go inside of the wash-boiler. Into this he drives 8-penny casing nails about $\frac{1}{4}$ of an inch apart, zigzag, the entire length, and deep enough so they will stand up $1\frac{3}{4}$ inches. See diagram. Wooden handles are



nailed on to each end. The lights of glass are now stood up on edge between the nails, and the whole is immersed in the solution of potash. It is then left there for about ten minutes, when it is lifted out and soused down into a tub of water to rinse off the glass, for the photographic film will all have dissolved off in the solution.

To expedite the work, three wooden racks for holding glass are made; and if one works right he can take 50 every 5 minutes, and have 2 minutes' rest out of each 5. When the rack is taken out with the glass it is set on the inverted boiler-cover and carried over to the tub. This catches the drip.

BEE OR MACHINE HONEY.

WALTER S. POWDER has been doing some good work in replying to certain articles

that have appeared in the *Indianapolis News*, a daily paper of wide circulation and much influence. It not only published Mr. Powder's letters, but one from myself. The result is, the readers of that paper are probably pretty well advised by this time that there is no such thing as manufactured comb honey. Mr. Powder, in speaking about the condition of the market as the result of these comb-honey canards that have been afloat, writes:

The honey business is dull, and it can be attributed to nothing but the newspaper stories. We learn this from conversation with those who come here for honey. Many ask if this is bee honey or machine-made honey. Others ask if this is pure comb honey or fed honey. In one case I explained to a man that there was no machine-made honey and he replied, "Well, I don't know about that. I have just learned that I have been eating manufactured eggs all winter." Another man said that he once knew of a place in Indianapolis where they made comb honey by machinery. On further inquiry he referred to my old shop in Walnut Street, where I was located some years ago.

WALTER S. POWDER.

I am afraid that Mr. Powder, when he tells us that the "honey business is dull," comes pretty near hitting the truth—especially when he attributes that dullness to the lies that have been circulated. We find in our business that the demand for extracted honey is good, while comb honey is of rather slow sale.

Before the onslaught of lies there was a certain steady demand for comb honey. Now, why is it that that demand seems to have eased up *just at a time* when honey ought to find a fairly good sale? I tell you, brother bee-keepers, there are thousands—yes, millions—of people who *still believe* that the greater part of the comb honey on the market is *machine-made*; yes, and a few fools who have been eating pickled eggs imagine they have been eating a manufactured article. The campaign of article-writing, telling the truth about comb honey and how it is produced, should be kept up by our friends.

J. K., Minn.—As a rule very little honey is obtained from dandelions. Some have even questioned whether bees get any at all, asserting that pollen is the only thing that they visit the blossoms for. The probabilities are, both pollen and a little honey are obtained. Indeed, I have sampled what was said to be dandelion honey, and it had a very distinct flavor, not unlike the aroma from the flower. But I never knew of a case yet where any considerable amount was obtained. Dandelions grow profusely here, and the only effect of them is to start brood-rearing slightly. Dandelion honey, what little there would be, would not be sufficient to supply the bees with stores if they were short on coming out of winter quarters.

The south side of a ridge or hill would be an ideal place on which to put bees. You need not fear about its being too warm.



TAKING BEES FROM WINTER QUARTERS.

When and How to Do it; Good Orthodox Teaching.

BY R. F. HOLTERMANN,
Formerly Editor of the Canadian Bee Journal.

After careful wintering comes the question of placing the bees on summer stands, and how and when to do so to the best advantage. This is a matter in which the bee-keeper must be guided in part by circumstances. Bees should be kept warm in spring, and doubtless a great deal can be gained by husbanding the heat of the cluster and having the hive close-fitting in all its parts. Let me say that over twenty years of experience in handling bees, the manufacture of supplies, and having now no interest whatever in their manufacture, aside from making the hives for our own use, and to hold the bees we sell, convinces me that the average bee-keeper does not attach the importance and value he should to good hives. The supply-dealer who seeks to provide a good article for his customers, and charge a reasonable profit, has constantly to convince the inexperienced bee-keeper that his goods are worth more than those of a local sawmill, the operators of which often have no idea as to the requirements of a hive, especially as to accuracy. That it will pay in our locality to pack our bees in outer cases after setting on summer stands, I doubt; but that it will pay to give considerably more for a hive, that will afford ample top protection, I am sure. If a bee-keeper has such a hive it will pay to set bees out earlier than when they are not so protected.

To know the best time at which to set out bees requires very careful observation, and is, in a measure at least, partially guess-work. The purer the air of the cellar, and the better the bees are wintering, the longer they can be left in the cellar. If I find certain colonies restless I aim to set these out, also others necessary to move to reach those restless. When are these to be set out? Just as early (in our latitude in March) or quickly as the bees can get a good cleansing flight. Activity exhausts vitality. When the intestines of the bee are charged with excrement, and it becomes diseased, it can not rest; and the longer that condition prevails, the more vitality is exhausted. Under these circumstances the sooner the bees get a flight the better. Even should it be very cold afterward, the bee has disposed in flight of the matter which keeps it restless, and it can settle down quietly in the hive. I have seen colonies so treated do fairly well when those in apparently the same condition left in the cellar perished. However, I gave the bees a warm cushion on top. Top protection is important.

Quite recently, I do not know where, some one advocated taking a colony with dysentery, carrying it some distance from the hive, and shaking the bees in the air; and when those in their flight returned to the old stand they would, in flight, discharge their excrement; and by repeating the operation several times the bees would be cured. Let me say this: I never saw bees restless with dysentery, if it was daylight, remain in the hive if the atmosphere was warm enough for them to fly without chilling, and the shaking-off process appears to me to be quite superfluous.

If the bees are all in about the same condition, what then? Shall they all be set out at one time? I am not an advocate of setting a large apiary out of winter quarters at one time. By that I mean carrying them out one after another until all are out, especially if the day is warm and bright. Why? It leads to confusion. The poorer the wintering, the greater the excitement of the bees during their first flight. Am I an advocate of late setting out? No. From year to year my practice has been to set out earlier; and in this locality, some 80 miles north of Buffalo, if the day is favorable I would begin setting bees out at any time after March 15. Out of 100, set out 7 or 8; and when they have had a good flight put shade-boards over the entrance, and then set out more the next favorable day, and so on until all are out. In no case would I keep the bees in the cellar after the first pollen appears. No doubt, unless the bad air in the cellar prevents, the bees can smell the pollen and nectar, and they will not rest.

Some say the bees that have been set out rob those taking their first flight. I have never found this to be the case. By setting shade-boards in front of those out, and then taking the bees from the cellar early in the day, these latter bees are pretty well over their excitement by the time those having stood in the outside cold with shade-boards over the entrance get stirred up. With successful cellar wintering there is no brood-rearing while in winter quarters. *There is no mistake about this.* Activity means exhaustion of vitality; and when vitality is exhausted, instinct (I call it obeying God's law implanted in the animal) causes the bees to rear brood to replace the exhausted vitality. When the bees are set out they begin brood-rearing; and the more active the bees, the more brood is reared. The days they fly, the queen lays. After several days of quiet she ceases laying; and when one or more days favorable to activity return, the queen again lays. To such an extent is this the case that an expert can tell by the age of the brood in the combs the duration of cold between seasons of activity.

Some complain that, in the excitement of a general flight, the bees intermingle, and the strong attract bees from the weaker. This is undoubtedly true; but by setting out fewer bees this tendency is reduced. I

also strongly favor setting bees on the summer stands very early in the day, or just before it is warm enough for a flight. By so doing, the bees come out more gradually as the temperature rises. There is a slight danger of a change in the weather; but here, as in other places, the experienced, careful, and observing person has some advantage. With good wintering there is no need of changing or cleaning bottom-boards. They should be clean, dry, and sweet; but if there are dead bees on the bottom-board to any extent I would change these after the bees are through flying. With the help of another this can be done very quickly. The sealed quilt should be left untouched, and entrance-blocks should be adjusted to suit the strength of the colony. When bees are set out early, before pollen or honey can be gathered, shade-boards should be placed over the entrance, and taken down only when the bees can fly without chilling. Shade-boards over the entrance will also be found an advantage when bees are likely to fly during unfavorable weather, even when pollen or honey may be secured.

To recapitulate briefly: Set bees out as early in March as they can get a cleansing flight, if they become diseased. If quiet and healthy, leave them in the cellar until the first pollen appears. The poorer they winter, the fewer should be set out at one time. Set out when the indications are that it will be warm and fair, but before it is. Keep in, by means of shade, or even close up those that have had a flight, and might rob those having a first flight.

In closing, let me say I do not know if it is desirable that bees be returned to the stand from which they came. I doubt if it is necessary. By following the points given above, we shall steer clear of that which tends most to draw the bees away from their own hive during the first flight; and to be perfectly safe it is, perhaps, as well to return each hive to the old stand.

Brantford, Ont., Can.

[It may be well to bear in mind that localities vary greatly as to the proper time to set bees out. Dr. Miller once gave the good rule that applies equally to all places, to set out when the soft maples come into bloom. This will usually be about the time when safe warm weather comes on. We shall, however, set our bees out late rather than early. We are liable to have a very warm spell in April, during which the bees will get a large amount of brood started. This will be followed by cold weather during which not only a large part of the brood is lost, but many of the bees, in their efforts to hover and preserve the brood. It therefore seems to me (except in the case of actually diseased colonies) that March 15 is about a month too early for most localities. Last year we did not set our cellar bees out till *after the 1st of May, and those colonies proved to be the best we had.* Of course, if one can't keep his bees quiet he will have to set them out earlier.

Mr. Holtermann is exactly right in advising the setting-out of a few colonies at a time. Indeed, I indorse every thing else he says, except as to the time of setting the bees out.—ED.]

VENTILATION OF BEE-CELLARS.

A Reply to T. F. Bingham.

BY G. M. DOOLITTLE.

[The following article was intended to follow immediately after Mr. Bingham's, to which it is in reply, in our Feb. 15th issue; but it arrived just after our forms had been made up. The reader is requested to turn to page 154, and then he will understand this article a little better.—ED.]

Mr. Editor:—At last our snow blockade is off, and we get our mail again, the first time for nearly a week. You ought to see our roads. Many are the drifts from six to twelve feet deep, and we have shoveled and shoveled till we are all glad to be in communication with the outside world again. One of the good things is that it is not so extremely cold, four degrees below zero being the coldest. With the opening of the roads came your letter, containing proof of Mr. Bingham's article, with your footnotes thereto, together with a stack of mail that will take me days to wade through. I thank you very much for sending this proof, and giving me a chance to say a few words in the same issue.

The discussion now going on relative to this ventilation matter reminds me of the seventies and early eighties, when we were at it "hot and heavy," only a little being said at this time about the "sub-earth" part, which was then thought to be the most necessary part in the matter, the upper ventilator being opened and closed as the temperature of the repository said was necessary; and the opening and shutting of ventilators, as spoken of then, and at the present time, brings back very forcibly to my mind just how I used to run out to the cellar with every change of wind and temperature, else the cellar would be nearly or quite freezing one day and too warm soon after. I followed this for several years, as did scores, if not hundreds, of others, until it began to dawn on my mind that perhaps this matter of ventilation might possibly be overdrawn, and I mistrust that some of those who are now so sure that *ventilation* is the main thing in cellar wintering may weaken somewhat in the matter as time passes into years. With this "dawning" I began to leave the ventilators closed a part of the time, especially the sub-earth one, and found that the bees wintered better than they had at any time before, notwithstanding all the labor I had been to in fussing with ventilators.

The next winter, during a cold spell I kept all closed for two weeks, and found on going into the cellar that the bees were in the nicest condition I had ever seen them up to this time, so I left all closed for another two weeks, when another examination show-

ed that they were in just as nice order as before. I now paid no further attention to ventilators; and when the cellar was newly roofed no provision was made for ventilation whatever. Nor have I seen any reason since for ventilators, so far as the *bees* were concerned, for they come out in the spring much better since I use no ventilation than they did when I was fussing with ventilators as some are now doing.

If you will turn to page 333 of A B C, 1899 edition, you will see that my upper ventilator was not the little one "thirtieth," or "three and four inch ventilator," you speak of in your footnote, but a 6x8 inch ventilator, or one nearly one-fifth as large as your 16-inch-square one you are now recommending. This, together with the large sub-earth ventilator (100 feet long, and at an average of 3 feet under ground) would change all the air in the cellar in less than five minutes. Then you must have forgotten how, with those dry cellars of years ago, the bees got uneasy and noisy, coming out of their hives and running about the entrance till some one found out that the giving of water in a sponge quieted them. And I have often wondered if those having noisy bees, and who opened their cellar doors at night, and shut them in the morning to quiet them, could not do this quieting more quickly by giving a little water in a sponge. My idea is that it is the damp night air which is let in that should have the credit of quieting the bees, more than a change of air. This damp air, together with a cooling of the cellar, slakes their thirst and makes them happy. Away back in the seventies, with my dry cellar and pure air I have given water to restless colonies at night, and found them as quiet as "lambs" the next morning. I have been watching this ventilation matter through the "eyes" of the past, and can only see in it a revival of those days; and as long as my bees winter very nicely, without even one single thought, on my part, as regards ventilation, from the 10th of November to the 20th of April—no, not so much as the opening or the shutting of a door (notwithstanding Mr. Bingham thinks I do this, according to his letter found on page 934 of GLEANINGS for 1901), I do not see any reason for adopting that great big ventilator, nor worrying my head over the matter, and much less of running back and forth to the cellar all winter to see that the ventilation is properly regulated to suit every change of wind and temperature. If the bee-keeper can gain nothing by all of this trouble in looking after ventilators, his time can be much more profitably spent in preparing for the next season, or by reading, recreation, and rest.

And to Bro. Bingham I will say, I would prefer my hives dry, and would prefer less mold on the cellar walls; but if my bees winter as well as his, can he say that his dry sweet air is any better for the *safe wintering of bees* than the dampness which mine enjoy? The experience of the past

has led me to believe that, where a cellar is not overstocked, an *even* temperature of from 44 to 46 degrees, together with a *moist* atmosphere, is one of the *happy* environments, very enjoyable to the bees, and one tending toward their coming out nice and healthy in the spring. At any rate, it winters well with me, and gives me a "happy" winter, free from any care whatever in the matter, and at present I am satisfied to let "well enough" alone.

I had thought to close here; but I have been reading the proof of Bro. Bingham's article over again, and feel that I should say a few words regarding this sentence of his: "A hundred colonies of bees consuming 400 pounds of honey per month, would liberate not less than 35 to 40 lbs. of water per week." I wonder if Bro. B. meant just what that sentence conveys to the mind of the average reader. Or was it put in as a sort of "filling" to make his side appear the nearer right? But whichever way he intended it, this sentence speaks the loss of 1500 pounds of honey, or its equivalent, during the five months the 100 colonies are in his cellar, over and above what mine consume, just for the sake of that dry air and his extra work with that big ventilator. Bless your heart, friend B., if bees must consume stores at the rate of four pounds of honey per month, per colony, for the privilege of being in a *dry, well-ventilated* cellar, then I have an additional reason for sticking to my *moist, no-ventilation* one; for it is a rare thing that any colony consumes more than one pound a month while in this cellar; and on several winters I have had colonies which did not consume more than from $3\frac{1}{2}$ to 4 lbs. of honey during the five to five and a half months they were in this repository. This saving of honey will far more than overcome all disagreeableness which arises from moisture, and leave a large amount on the credit side of the balance-sheet besides.

Borodino, N. Y., Feb. 7.

[This question of ventilation seems to be a rather perplexing one. Our experience is emphatically in favor of ventilation. Our out-yard cellar was not ventilated, and Mr. Wardell has reported it as not doing well, while the bees in our home-yard cellar—that is, the one under the machine-shop—are doing finely. In the former the air is very damp and the ventilation is limited, because I did not notice that Mr. Bingham recommended a 16-inch ventilating-flue, until *after* we had put in the 6-inch ventilator, and the bees were in the cellar.

Regarding the consumption of honey as reported by Mr. Bingham, it appears that our friend must have made a mistake. Conservative estimates have shown that indoor-wintered bees consume about half of the amount of stores consumed by bees outdoors. In some cases the figures are down as low as one-fourth, so that from 5 to 10 lbs. per colony during the five months would be more nearly correct. Mr. Doolittle puts the

figure at 5 lbs., and he is about right, according to our experience, and according to the experience of those who get good results in wintering. I consulted Mr. Bingham's copy, but found the same 400 in his own handwriting, of honey per month for 100 colonies. This makes in all 2000 lbs. of honey, for the five months, when it should be about 500 lbs. for the same length of time. Evidently Mr. Bingham has made a mistake. His figures will be very liberal, even for outdoor-wintered bees. But even taking the figure of 500 lbs. for the five months, that would leave him from 40 to 45 lbs. of water according to the same ratio, or between six and seven gallons for the 5 months. Even this amount, with the moisture from the cellar, would be sufficient to soak the boards of the hives of 100 colonies—that is, providing this moisture could not escape.—Ed.]

A HONEY TRUST.

California and its Effect on the Honey Market.

BY F. E. BROWN,

Manager Central California Bee-keepers' Association.

It is a rule with the honey-buyers of the United States to watch the rain conditions of Southern California; and as soon as the winter rain is reported, then it is that they line up and get ready to "do" the fickle-minded honey-producers of that unfortunate part of this great honey-producing State, and the rest of the world is made to suffer their folly with them.

For instance, at the beginning of the last season's rainfall for this State, the writer was in Chicago, and the honey-buyers had nothing to say regarding honey except that, as California was having big rains, there would be abundance of choice honey that could be bought at a price of 4 cents. I laughed at the idea, and told them that, as Southern California was now well organized, they would probably market their honey from this on; they would smile, and say, "Wait and see." Yes, we did wait and see. Central California, as well as Arizona, held their honey, provided money for the man who had honey who was forced to use the same to get money, and thus the honey was stored, waiting, as we supposed, for the conditions of the honey market to so shape up that we could prove to the honey-buyer that there was no 4 cents this time. After waiting a long time, all the while keeping in touch with Arizona, finding them faithful to their word, holding firm for the living price, Southern California through what was thought to be the Exchange, manifesting the same spirit, all seemingly working quietly on to success, the buyers reported to the California grower that Arizona was selling at 4 cts., and at the same time reporting to the Arizona producers that Central California was selling at 4 cents. These reports had no weight upon us, as

we were posted as to what the other was doing.

Buyers soon began to be indifferent as to whether they had our goods or not, stating that they were getting all they wanted from Southern California at a price of 4 cents. Arizona was told the same thing, but we did not believe it; but suddenly the crash came, like a thunderbolt from a clear sky. A letter from a party controlling 50 or more cars stated that he had marketed, up to date, 22 cars, at a price of 4 cents, and at the same time he advised me to sell what I controlled through him. What were we to do? Southern California, with 300 cars of choice honey, was seeking a market at 4 cts., with a freight rate of 85 cts., while we here in Central California, as well as Arizona, had our 30 to 40 cars, and a freight rate of \$1.10. The jig was up, and we, with our hands tied, were forced to submit.

Now comes Rambler, who wants to form a *trust* for the greater production of honey, and suggests that Southern California be made the hub, the center, the first and foremost. That is just what the buyers would like, as the scheme would work well to their good and gain.

I say, let us have a trust (if it be called a trust) for the protection of the producer, and let its head be away from the coast of the Pacific. Make it national, with the head in Chicago, backed up by every locality in its reach; give them the control of the honey, and allow no locality to dictate prices.

THE BEE IN LAW.

Keeping of Bees; When and When Not a Nuisance.—Article 5.

BY R. D. FISHER.

1. *General Definition.*—The term "nuisance," in legal phraseology, is applied to that class of wrongs that arise from the unreasonable, unwarrantable, or unlawful use by a person of his own property, real or personal, or from his own improper or unlawful conduct, working an obstruction of or injury to a right of another or of the public, and producing such material annoyance, inconvenience, discomfort, or hurt, that the law will presume a consequent damage.

A nuisance may be said to be any thing wrongfully done or permitted which injures or annoys another in the enjoyment of his legal rights. (See Wood's Law of Nuisances, 2d Ed., 1, and Cooley on Torts, p. 565.) It will be noticed that this definition is so broad as to include many wrongs not regarded as nuisances. "Nuisance, *nocturnum*, or annoyance, signifies any thing that worketh hurt, inconvenience, or damage."

2. *Public and Private Nuisances.*—Public or common nuisances affect the community at large, or some considerable portion of it, such as the inhabitants of a town or community; and the person therein offending

is liable to criminal prosecution. A public nuisance does not necessarily create a civil cause of action for any person; but it may do so under certain conditions. A private nuisance affects only one person or a determinate number of persons, and is the ground of civil proceedings only. Generally it affects the control, use, or enjoyment of immovable property; but this is not a necessary element according to the modern view of the law. A nuisance, to be a public nuisance, must be in a public place, or where the public frequently congregate, or where members of the public are likely to come within the range of its influence; for if the act or use of property be in a remote and unfrequented locality, it will not be a public nuisance. A common nuisance, according to English authority, is an unlawful act or omission to discharge a legal duty, which act or omission endangers the lives, safety, health, property, or comfort of the public, or by which the public are obstructed in the exercise or enjoyment of any right common to all the people.

Strictly speaking, a trade or occupation, a business or industry, lawful in itself, and which becomes a nuisance because of its location, or the manner in which it is conducted, or the character of the animals or thing, is not a nuisance *per se*, though it may be a *prima-facie* nuisance.

3. *Keeping Bees—When and When Not a Nuisance.*—Whether bees are or are not a nuisance is to be judicially determined in each individual case, and it would seem that the foregoing definitions were broad enough to include them. Only a few cases have found their way to the higher courts, involving this subject; but with the development of the fruit-growing industry the bee's liberty is more than ever questioned, and it is not unlikely that the future will be conducive to much litigation between the fruit-grower and the bee-keeper.

Place of Keeping Bees.—One engaged in the business of keeping bees may not rightfully keep his bees in a place upon his premises so as to annoy his neighbors. Such an act is a nuisance. One of the earlier cases on this subject was decided by the New York Supreme Court (*Olmsted v. Rich*, 6 N. Y. Suppt., 826), and other courts have been content to follow it. In this case the evidence showed that the plaintiff and defendants were neighbors; that the defendants were keeping a large number of hives of bees in a lot immediately joining the plaintiff's dwelling-house, and that at certain seasons they were a source of great annoyance to him and his family, and also that they could be removed without material difficulty to a place on the defendant's premises where they would not disturb the neighbors. The action was in the nature of an injunction to prevent defendants from maintaining their apiary at the place above named. The court held that the case was a proper one for a permanent injunction. In such action the issue was not as to defendant's motives in

keeping the bees, nor whether they had knowledge of any vicious propensities of the bees, but simply whether the condition of things, as then and previously existing, constituted a nuisance. The court held affirmatively, and the bees were ordered removed in order to abate the nuisance.

On the other hand, an ordinance by a city council which makes the owning, keeping, or raising of bees within a city's limit a nuisance *per se* is too broad, and is, therefore, invalid. The most celebrated case of this kind on record is that of *Clark v. City of Arkadelphia*, Arkansas, 52 Ark., 23. The evidence in this case showed that Clark, who had kept bees in that city for a number of years, was not in political harmony with those in power, and the latter sought to punish him and get rid of his presence by prohibiting the keeping of bees within the corporate limits of the city. Clark was ordered to remove his bees, but refused to do so, and his arrest and conviction by the city court under the ordinance followed. He appealed to the Circuit Court, the latter dismissing the prosecution, and then the State appealed to the Supreme Court, wherein it is held that, "Although bees may become a nuisance in a city, an ordinance which makes the owning, keeping, or raising them within the city limits a nuisance, whether it is in fact so or not, is too broad, and is not valid."

While bees have been kept for centuries in towns and cities, it is a fact, so far as we have been able to discover by a careful search of the court records, that the city of Arkadelphia is the first on record to attempt to forbid them. It is conceded, however, that the keeping of bees in cities may be regulated as to quantity and the manner of keeping, or make the keeper responsible, as in cases of other animals with dangerous propensities. This, however, is quite a different proposition from that of an ordinance calculated to destroy a business or industry altogether. "All ordinances, arbitrary in their terms, and unreasonable, and unnecessarily abridging private rights, are void," says Dillon on Municipal Corporations. City ordinances can not be levied at a mere private nuisance to one or more persons. The nuisance must be public and general in its character, and must be an actual nuisance with sufficient evidence to sustain it. Courts have, therefore, taken knowledge of the habits of bees, and hold that it would be impossible, at the present state of the bee industry, for them to be more than a private nuisance, for which the person or persons injured or annoyed have their remedy as set forth in the *Olmsted v. Rich* case, *supra*.

The decision of the Arkansas court is a valuable and stimulating precedent, is good law, and a menace to those who attempt to interfere with a useful and growing industry, pursuit, or occupation.

Our next article will be devoted to the subject of damages by reason of the presence, keeping, and owning of bees.

NOTES OF TRAVEL.

Arizona Bee-keeping Concluded; the Temperature of Arizona; the two Associations; our Genial Friend "Mike."

BY E. R. ROOT.

I have before mentioned that there are two associations of bee-keepers in Arizona. One of them goes by the name of the Arizona Honey Exchange, of which J. Webster Johnson is secretary and manager. The other bears the title of the Bee-keepers' Association of Maricopa Co., of which J. P. Ivy is secretary. The first mentioned is a split-off from the other. Some members in the old society, it appears, were dissatisfied, and a new organization was formed across the river. But so far as I could see there was not, at the time of my visit, a spirit of ill will or rivalry between the two.



HON. J. P. IVY.

They are practically working together as one harmonious unit. Mr. Johnson finds a market for the members of his organization, and Mr. Ivy performs a similar service for those of his.

I have already introduced Mr. Johnson, and given a view of his apiary. I now take pleasure in presenting Hon. J. P. Ivy, the active man of the Maricopa Co. Association, who owns and operates some 700 colonies, and who is considered all through the Salt River Valley as one of the progressive and successful bee-keepers.

At the time I met him, there was a general gathering of farmers and bee-keepers at Phoenix, at a grange of some sort that was being held. Not only active in bee

matters, he is a leader in political matters also. Recently he had been honored by his party, having been elected as Representative on the Democratic ticket over a very popular candidate of the other party. I was invited by him to go out to his apiary, as he was expecting to do some honey-extracting the next day; but as I was then almost at the limit of my time I found it impossible to accept his invitation.

On this day of the grange meeting we met quite a number of bee-keepers. Besides other bee-keepers, whose names I do not recall, there were present Mr. Wm. Rohrig; W. L. Chambers; J. P. Ivy; and last, but not least, Mr. M. C. Wall, or "Mike," as he is familiarly called. Mr. Wall is another active man in the Maricopa Association, and owns and operates over 1000 colonies. His particular forte seems to be buying up apiaries that "do not pay." Often he will take those same bees, and sometimes in the same localities, and make them return the cash put up for them in one season. I had heard a great deal about Mike—of how he was a "hale fellow well met;" and when that person joined our group nearly every one began to smile, for Mike always brings a ripple of merriment wherever he goes.

I remember there was an argument between him and Mr. Rohrig as to how warm it was that day. I said it was about 120, or at least it *felt* that way to me. Mike made the statement that it was 110. Mr. Rohrig very promptly asserted that he was away "off." There was something said about soda water and ice cream. Mr. Rohrig very promptly accepted the challenge from his friend Mike; and thereupon some of the parties went to look at the thermometers at the nearest drugstore. Mike came back all wreathed in smiles.

"You will have to pay for the soda and ice cream," said he.

After we had refreshed ourselves at Mr. Rohrig's expense it developed that Mike had looked on the warm side of the building, where the mercury actually showed 110, yet the other thermometers showed only 105.

I mention this little incident to give an idea of the everyday weather in summer in Arizona; in fact, I was told that I would have to be prepared for a temperature of 120 in the shade. I did not find it as high as that; and Mr. Rohrig said, I think, that it never reached that, in his experience, in the Valley.

The question of temperature finally resolved itself into a little discussion as to the proper conditions favorable for a honey-flow. All practically agreed that a temperature of from 115 to 120 is decidedly unfavorable, especially if accompanied with a breeze. The air must be absolutely still, and the mercury in the shade should stand from 90 to 100. Then the honey will fairly rain down.

I had heard so much about Mike that I was anxious to visit his apiary. I "hinted

around" for an invitation, but he didn't invite. Finally I got Chambers to put the question to him straight.

"Oh, no!" said he: "I do not want any bee-man—much less the editor of a bee-paper, prowling around my place with a kodak. It looks too bad, and is not fixed up for company."

But Chambers winked at me and said, "We will go anyhow," and we did. I think it was the next day on our way back to Tempe when we stopped off at Mike's headquarters, for he was baching it. When he saw us coming he said something about a bad penny returning, and that he wasn't looking for us; but that made us all the more anxious to prowl around. Between two of his apiaries he had a great pile of

variety of odd sizes, for in Arizona there are several kinds of frames in use. The two most prominent are the Langstroth and the Nippert frame. The last named is a very small frame, 10×10. Besides these there are a few other odd sizes. Of course our friend had to take every thing just as it came. He is too progressive a bee-keeper to have three or four different sizes of frames among his bees; so what did he do but toss all the odd-sized combs, as fast as the brood hatched out, into that mammoth solar wax-extractor which you see just back of him in the picture? Then he would transfer the bees to a standard hive and combs. I think the pile on which he stands represents the year's business of buying up and transferring.



MIKE WALL'S PILE OF TRANSFERRED FRAMES: AN OBJECT-LESSON IN ODD-SIZED FRAMES AND HIVES.

brood-frames of various sizes, as well as parts of hives. He tried to steer us away from this object-lesson, but we did not "steer." I told Chambers that I wanted Mike right on top of that pile; "but," said he, with a wink, "it will take better men than you are to put me on it," and it would, no doubt. But by dint of coaxing I got Mike and Mr. Chambers on top, and took a snap shot or two. The result is before you. Mr. Wall said something to the effect that I must not use that for GLEANINGS, but I made no promise.

I have already explained that our friend was in the business of buying up apiaries, and then not only making them pay for themselves but pay for their keeping. But as a result of his buying, he got a great

As firewood is scarce in Arizona he finds that these old frames make splendid kindling-wood; and all he had to do was to go to the pile for fuel when he wanted to make a good hot fire to fry his beefsteak.

That our friend is an up-to-date bee-keeper will be further evident by a photo of him holding one of his combs with Doolittle queen-cells on it. He is a reader of GLEANINGS, and I found he was able to produce as fine a lot of cells as Doolittle or anybody else can turn out.

THE BOY BEE-KEEPER'S WONDERFUL RECORD.

It will be remembered that Mr. Chambers, of whom I have been speaking thus far in this article, is the boy bee-keeper



MIKE WALL AND SOME OF HIS DOOLITTLE
QUEEN-CELLS.

who, through his own independent exertions, *and without a dollar of help from any one*, is the owner of 500 colonies—colonies that he has *made* pay for themselves. Since I left Arizona I have learned that his crop for last season was 44,000 pounds from 400 colonies, spring count, or an average of 110 pounds per colony. If there is another young man in all the United States who has made that record *before he was of age*—yes, if there is another one in all the world—we have never heard of it. I am glad to introduce Mr. Chambers again to our readers.

Lest I might create a wild rush to go to Arizona and do likewise, I will state that all the irrigated parts of the State, so far as I know, are very much overstocked with bees and bee-keepers. The yellow butterflies, the tendency to cut alfalfa before it comes into bloom, the occasional failure of water, the hot climate, rattlesnakes, mosquitoes that are awful—all these and more, should be taken into consideration.

There are many other bee-keepers whom I should like to introduce to you; but as I have got something like 4000 miles ahead of me, and have not even yet got into California, I shall have to bring my Arizona series to a close.

But I will mention that there are Stahl and Hough, who own about 1200 colonies which they put out on shares. There is John Nippert, the owner and user of a shallow hive and frame. I secured what I supposed to be a good picture of him; but he

complained that it made him look so old that he wished me not to use it. But Mr. Nippert is a successful bee-keeper, and his little hive and frame have been pretty widely scattered throughout the Valley. He is a believer in the principle of handling hives instead of frames, and is very successful in carrying out his idea, for he runs between five and six hundred colonies on that plan.

YELLOW BUTTERFLIES AND ALFALFA.

During some seasons of the year these are quite a pest, both to the alfalfa-grower and to the bee-keeper. Mr. Chambers explained to me that they would sometimes be so thick on a field that it would be fairly yellow with them. They destroy the blossoms, with the result that no honey will be given off from that field or any field where they swarm, for they appear to go in swarms.

HONEY-PLANTS OF THE SALT RIVER VALLEY, ARIZONA.

The list of honey-plants that supply the brood-nest and bring the bees up into good shape for honey-plants are the following: First there is the wild currant in Decem-



W. L. CHAMBERS.

ber. Next comes the cottonwood about the 15th of January. These are the large shade-trees I have spoken about that grow so luxuriantly along the ditches. Following these about the first of February is the willow. This continues till March. Next there is the yellow sweet clover, or sour clover, as it is called in Arizona. This is followed by the first crop of alfalfa, coming on about the 10th of April. But from this first crop comparatively little honey is yielded.

The plants that begin to yield surplus now come on, among which is first the mesquite, something that grows in Texas, New Mexico, and Arizona—in fact, all through this portion of the United States on the semi-desert lands. Mesquite in Arizona blooms about the first of May, and lasts some twenty days. Next comes on catclaw, about the 15th of May, and continues till the last of June. This is followed by the second crop of alfalfa, and from this the greater part of the honey comes. Close on to this is the third crop of alfalfa, for there are three cuttings of this hay in Arizona. The alfalfa yield all together lasts till about the last of July, after which very little surplus is secured, although there are light flows following, keeping the bees in good condition, and rendering feeding unnecessary.

In our next issue I will take you to the hottest place in the United States, and the most deserted of all deserts, and then we will take a big long jump over into California.

BEE-STINGS NOT A CURE FOR RHEUMATISM.

Difference in Locality.

BY DELOS WOOD.

It is quite a common thing for the bee-journals to publish articles in favor of stings for the cure of rheumatism, and these articles are copied far and wide by the local press; but I have failed to see a single article refuting the statement. I contracted rheumatism in the army during the Civil War, and since that time I have worked every season in the apiary, having from 25 to 700 colonies under my care. Some of them would sting equal to Rambler's, and he intimated his would attack a hot stove-pipe. I have had hundreds of stings, day after day, for weeks at a time, but no relief from rheumatism at any time.

A friend of mine who was badly crippled with the disease told me he had tied strings around the bottom of his pants, and then put a cupful of bees from his crossnest colonies inside his pants, and worked in the apiary for hours with them stinging him, but got no relief from it.

GLEANINGS says that the poison from *Apis mellifica* is used largely in homeopathic practice. This case was the homeopathic remedy in allopathic doses.

Many things are laid to locality; but this can not be, for my friend and myself have kept bees in Indiana as well as California. Is it not owing to a difference in the disease itself? We are both afflicted with chronic muscular rheumatism. There is no swelling nor inflammation. Possibly these cases reported as cured by the stings may be the inflammatory form. Who can tell us?

Some things are largely due to locality; and in locating an apiary it is necessary not only to know that flowering plants abound but also that they produce honey in that locality.

Ventura Co., Cal., boasts of its lima-bean honey; but along the coast of Santa Barbara Co. a colony of bees would starve in the center of hundreds of acres of beans. There is not a drop of honey in them. In Colorado and in many places in California, alfalfa yields honey in abundance; but in this locality, I have never seen a bee on it.

Santa Barbara, Cal.

A PRETTY SUBURBAN APIARY.

Hives Made with the Barnes Saw.

BY W. F. TURNER.

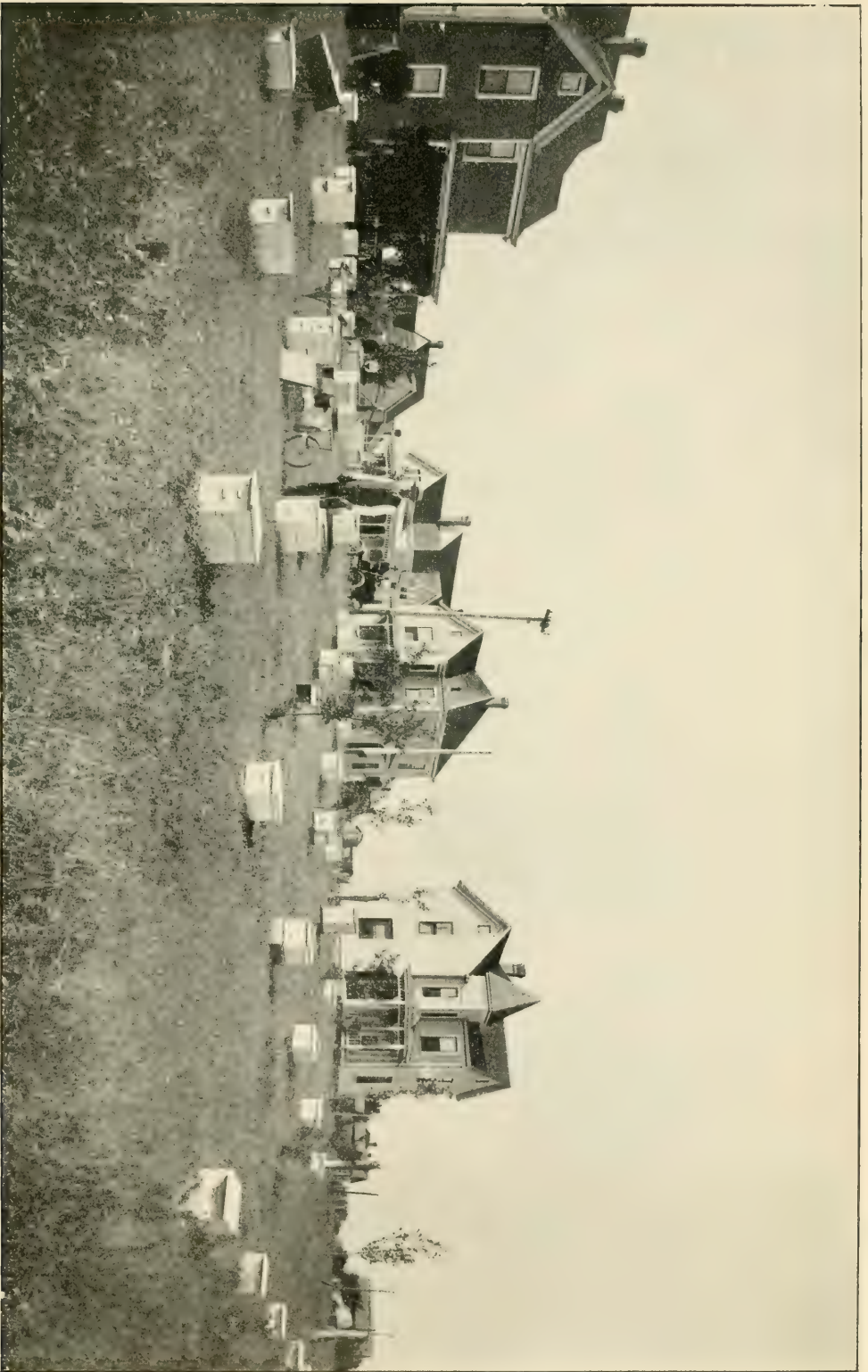
Mr. Root:—The picture I send you is not just to my liking, but the best I had at hand. The artist was in somewhat of a hurry, and did not give me time to fix up or arrange things for the picture as I had wished, knowing that, if it got into GLEANINGS, it would be viewed by many a critical eye.

My success I owe largely to GLEANINGS and the A B C book, having received the first volumes of the former when issued as a quarterly.

Our home is at the extreme left. The home of our only son, Charles L., is at the extreme right. He and his family are in the automobile, coming down street from the west. His wife and oldest daughter, Carrie, are standing in front of our house. Fifty-five stands of bees are on this lot, but not all shown. Shop and honey-house is just outside of the picture, near the solar extractor.

By the side of your humble servant stands the Daisy wheelbarrow bought of A. I. Root years ago, and still doing good service. If you look closely you can see a bee-brush and smoker hanging on a comb-box. I use the wheelbarrow for carrying combs to and from the honey-house. I use the eight-frame L. hives, and have tried the various kinds of tops as made by the Root Co., and like the ventilated gable cover best of any.

I have made with the Barnes combined machine 80 hives and supers besides 50 winter cases; but unless one is far from the source of supply, or near cheap lumber, there is little or nothing saved if one's time is worth any thing.



A PRETTY AVENUE IN THE SUBURBS OF THE CITY OF PEORIA, ILLINOIS.

My output of honey for 1901 was 40 lbs. per colony, which found a ready sale here in Peoria at 15 cts. by the case for comb, and 10 cts. per lb. for extracted, put up in pint Mason jars. My pasture here is mainly sweet and white clover, basswood, and catnip. I don't take any stock in the red clover as a honey-plant except for bumble-bees, and this tongue reach I consider all nonsense. Why not turn our attention to the "business end," and grow shorter stings, as hornless cattle are grown?

GLEANINGS is always a welcome visitor at my home, and the Home papers are always eagerly scanned by myself and family, and just now we are enjoying a great treat in the Notes of Travel by the editor, as I have been six times through to California, and note the correctness of many of the pictures shown. I wish GLEANINGS would come four times instead of twice a month.

Peoria Heights, Ill., Feb. 5.

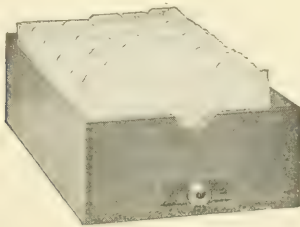
RECORD-KEEPING OF APIARIES.

A Modern and Convenient System.

BY ARTHUR C. MILLER.

I wish to call the attention of the readers of GLEANINGS to a very convenient system of keeping the records of their apiaries. It is not new in the literary or commercial world, having been long in use in libraries and business offices for all sorts of records and indexing. I refer to the card system. I have used it in business for fifteen years, but applied it to my apiarian records only about a year ago.

For the benefit of those who may not be familiar with this system I will give a brief description of it. It consists of a lot of cards of uniform size, perforated at the middle of the lower edge, all arranged in a drawer or tray, and held in place by a rod passing through the ends of the tray and



the holes in the cards. Assorted in among these cards are others having projections, or "tabs," which stand above the general level of the rest of the cards. These tabs serve as the guides or indexes to the cards back of them. On the tabs are written or printed letters of the alphabet, numbers, dates, subjects, or any manner of sign which will readily indicate to the user the matter to be found on the cards between that guide-

card and the next. The accompanying illustration will serve to make it more clear.

As may be readily appreciated, this system lends itself to an endless variety of classifications, and its usefulness is limited only by the skill of the compiler. When ordinarily referred to, the cards are tipped back or forward like the leaves of a book; and if the case is dropped, the rod holds all secure. When putting in new matter, or removing that which has become obsolete, the rod is taken out and all cards are free. It has this particular advantage over a book: All "dead" or useless matter is eliminated by simply removing the card it is on. Any number of cards may be used to refer to things about a colony or strain of bees, each of these cards being filed under a different classification, so that, no matter which of many titles is looked under, the details are readily found. Or one card may have records on one subject and refer to many colonies by number, letter, or otherwise. For memoranda in the hive, one of these cards is slipped under a bent pin or nail on the under side of the cover, or simply laid on the mat under the cover. Duplicates may be kept in the case in the house, or these cards may be left in the hive until filled up, when they are filed away and new ones put in their places.

If work is to be planned before going to an out-apiary, the cards referring to the colonies needing attention may be removed from the tray, classed according to the work to be done, put into an envelope, and slipped into the pocket ready for instant use when wanted. An outfit such as I have illustrated here, consisting of a case, guides, and 800 cards, cost me \$2.00, and was purchased of the Library Bureau, Boston, Mass.

I use cards ruled only across, as on letter paper. For all ordinary work they are as convenient as specially ruled or printed cards, and much cheaper.

Providence, R. I., Dec. 3.

[We use this same system all through our office; in fact, we have even gone so far as to discard the heavy and cumbrous ledgers in our book-keeping department, and have substituted in their stead drawers of cards like that shown in the illustration. The great advantage of this system over the book method for any kind of business or any kind of work is, as Mr. Miller points out, that one does not have to thumb over constantly records that have been completed, or which are of comparatively little use. The complete records are filed separately, while the new and unfinished ones, or those that are being filled out, are within finger reach.]

The time is coming when records of every nature will be on what is known as the "card-index" system; and Mr. Miller is correct in believing that such a system would be specially applicable to an apiary. This plan of record-keeping is respectfully referred to a certain doctor of the family of Miller.—Ed.]



QUESTION ON WINTERING.

1. Can I unite two weak colonies at this time of year? Is it too cold?

2. Do you make an air-spaced hive (no packing)? There are several bee-keepers here who use them, and prefer them to chaff. What do you think of them?

3. Is there a hive cover that will not leak? I bought several Danz. covers (made by you) last summer, and every one leaked so that I found a puddle of water on the canvas after every rain.

Shall I contract the entrance to your Dovetailed hive for outdoor wintering? I am a beginner.

F. P. BRIGGS.

Ayer, Mass., Feb. 1902.

[1. You can very easily unite colonies at this time of the year, in the cellar. All that is necessary is to put one hive on top of the other, and the bees will gradually work together.

2. All our double-walled hives can be made air-spaced, or packed with chaff, sawdust, planer shavings, or any kind of material. In a mild climate like yours, our double-walled hives would not require packing. Perhaps it would be better without; but in a colder climate the packing is certainly an advantage. We would refer you to "Chaff Hives," on page 11 of our catalog. In putting these hives together, leave out the packing and you will have the best double-walled or air-spaced hive there is made.

3. In our 1902 catalog we offer two covers which we guarantee will not leak. The new gable cover, or flat cover covered with Neponset paper, will be perfectly tight.

4. For outdoor wintering we recommend an entrance $\frac{3}{8} \times 8$ inches. For very cold weather an entrance $\frac{3}{8} \times 4$ inches would do very well; but in that case the apiarist himself should see that the entrances are clear, and not clogged by dead bees.

5. A compartment shut off from the furnace-room in your cellar would make an excellent place for wintering bees; but usually in such a room not more than 50 colonies can be accommodated to advantage. Too many bees in a room make the air too bad.—ED.]

HONEY FROM RED CLOVER; RED-CLOVER BEES.

I notice you advertise red-clover queens. So far as my experience goes, all Italian bees work more or less on red clover, especially the second crop; but I find quite a contrast in the quantity of surplus stored by different colonies. I have had a few colonies that gave me a fair surplus from that source, while others, apparently as strong, gave me nothing. This led me,

years ago, to believe it quite possible to produce a strain superior to any thing we already have in that regard, and reared the most of my queens from those best colonies. While my bees at present are more finely marked, I do not believe they are in any way superior, except the marking, to those I produced from 1868 to 1882. And this leads me to conclude that it is not as necessary to infuse fresh blood as some breeders claim. I purchased my first colony of Italians in April, 1868, and Italianized my apiary of about 25 colonies during that and the next season, and did not infuse any fresh blood until the summer of 1882. I am positive I secured as much surplus from red clover during the period named as I have since; and I am positive, also, that, during that period, there was no fresh blood infused, as I was the only person anywhere in this vicinity that bred the Italian bee, except a few of my neighbors whom I induced to try them. Since 1882 I have procured one or more queens annually, but can not see any improvement except in color. During the last two seasons I have reared queens from best colonies irrespective of color, being satisfied it is the correct course. I am pleased to see the change in breeding for color to that of honey-producing quality. I shall not feel surprised if the genuine red-clover queen were already here.

E. B. SLAUGHTER.

ANOTHER OFFER FOR BOGUS (?) COMB HONEY.

Mr. Root:—I notice on page 36 that you offer \$1000 for 1 lb. of manufactured comb honey, filled and capped without the bees. This is all right; but you said, "made at a factory," "*where such stuff is made.*" Now, we have lots of fools who profess they believe comb honey is made and filled by machinery. Among these are many ladies, one an "M. D." who ought to know better. One rich, highly educated lady told me intimate friends of hers had been in the factory, and seen tons of such manufactured comb honey. Now, I wish to say most emphatically there is not such a factory in the broad universe. I challenge, and will pay \$100 to any one who can name the State, county, city, street, or number, of any place where comb honey is or has been made; and I will give \$100 to any one that will give me one square inch of comb honey, made, filled, and capped in any way other than by bees in the past. I will give them ten years to do it in future. Any one, who knows enough about bees and honey to say white is white or black is black knows it is physically impossible to manufacture and cap comb honey.

F. DANZENBAKER.

Washington, D. C.

THE AMOUNT OF WAX IN OLD COMBS.

How much wax would the Root steam wax-press, described in GLEANINGS for August 1, take out of a full set of combs,

both brood and extracting, of an eight-frame hive? The combs in question would be very old, black, and poor, but not moth-eaten. In other words, how much available wax would a set of combs such as I described, contain? WM. BLOCH.

Dulzura, Cal., Jan. 24.

[This is a hard question to answer. A good deal depends on whether the combs were made originally from foundation; and, if so, was the foundation heavy, medium, or light brood? If no foundation was used at all, then the amount of wax that can be obtained will be smaller still. I should not expect, ordinarily, more than from half a pound to one pound of wax from such combs. With the best of apparatus, and combs that were built off from good heavy foundation, we might get two pounds; but under ordinary circumstances I should not be surprised if you did not get even half a pound.—ED.]

MOVING BEES ON A WAGON WITHOUT CLOSING THE ENTRANCE SUCCESSFULLY PRACTICED.

Last spring I moved about 60 colonies of bees a short distance, without closing the entrance. About dusk I went along and gave each hive a few puffs of smoke, then in a few minutes I went back to the first ones, puffed a little more smoke into five or six hives, then went to work loading until I had these five or six loaded, then smoked five or six more; commenced loading again, and so on until all were loaded. I started very carefully. If they were much disturbed I would stop for a minute or two, then start again. After going a little way I would not pay any more attention to them, but drive right along. R. C. CLARY.

Ft. Morgan, Colo.

A CARD FROM F. W. L. SLADEN.

Mr. Root:—Have you room in GLEANINGS for a few words of thanks from me to the American apiarists who entertained me so splendidly on my recent trip to the great country across the ocean? I was very sorry not to have been able to get over in time to attend the Bee-keepers' Convention at the Pan-American Exposition, but the disappointment was well compensated by the greater pleasure I had in becoming acquainted with some of the bee-keepers in their own homes. The "royal welcome" you bespoke for me in your issue of October 1 was indeed realized, and I had a downright good time with every bee-keeper I was able to visit. My chief regret is that I had only time to go and see so few.

It is difficult for me to sum up in a few words my many impressions of American bee-keeping from an English bee-keeper's point of view, so I will not attempt it here, but will just say that I made a special point of endeavoring to investigate the differences between the methods practiced in the two countries, and looking into the causes of these differences. I found this to

be a particularly interesting and profitable line of thought. On the whole I was surprised and delighted to see the remarkable progress that apiculture is making in America. Though I did not go far either west or south, I tried to realize the vastness of the country and the many varieties of the conditions for—and therefore methods in—bee-keeping that must exist. The industry is certainly in a very vigorous state. My best wishes for further progress during the year which will have begun before this reaches you, and also for a good crop to the bread-winners of the happy homes I have such pleasant recollections of having visited. F. W. L. SLADEN.

Ripple Court, near Dover, Eng., Dec. 26.

THE MARKED DIFFERENCE IN THE WORKING QUALITIES OF COLONIES.

I have many times watched the different colonies in my apiary when there was apparently very little honey-flow; and while some colonies were quite active, and actually bringing in honey, others would be almost entirely idle. I have observed it so closely and so many times, also noting the conditions of the active and inactive colonies, that I am satisfied in my own mind that there is quite a difference in the industrial qualities of individual colonies. And why should it not be so, the same as in the rest of animal life? Progression in bee culture is still ahead of us; and to obtain the best results means experimental study.

Your advice, Mr. Editor, in footnotes on page 975, I consider pure gold.

Brooklyn, Pa.

LUTHER S. ELY.

Please give me your opinion on wintering with super on, with no absorbents or any thing inside but cover sealed tight.

EARL N. EVERSON.

Brilliant, O., Nov. 17, 1901.

[Some very good results in wintering have been secured by leaving on the supers; but usually we would advise taking them off, putting on absorbents instead, or, perhaps, better still, a sealed cover.—ED.]

Will you please tell me how to feed refuse honey to bees at this time of year?

CLIFFORD RANNEY.

Hillsdale, Mich., Jan. 2.

[It is a bad time of year to feed refuse honey to bees, either in the cellar or outdoors. Better give cakes of hard rock candy, and keep your honey until next spring.—ED.]

LIARS—WHAT THE SUNDAY SCHOOL TIMES THINKS ABOUT THEM.

No liar can ever be great except as a liar. He does not stand on the eternal foundations of truth. All great tides of power in the universe sweep along the lines of truth. Whoever works against them goes down. Ananias died on creaky, all others, more or less so. The waters of this sin is death.



Happy is the man that findeth wisdom, and the man that getteth understanding.—Prov. 3:13.

It is now toward the latter part of February; and although I have not been away from home a single day during this past winter, and the weather has been cold and wintry (since the first of January, any way), I have been having an exceedingly happy time. In fact, I do not know that I ever enjoyed life more than I have during this past winter. I am happy when I get up in the morning, because it gives me a chance to get at the work I love. To tell the truth, it hardly is *work*, for to me it is more like play. When it comes dinner time I am happy again, because, although I had almost forgotten it, I was so much taken up with my work (or play) that I had actually forgotten I was hungry. I can thank God for my dinner, with honest sincerity, because I have an excellent appetite; and it is the same way in the afternoon and the same way at supper time. Of course, I have my afternoon and forenoon naps when I am tired; but so much interested have I been in this winter occupation that of late I have been sleeping only fifteen or twenty minutes. I am happy again during the evening because I have the latest books and papers devoted to my favorite pursuit; and I am happy again at bedtime because I go to sleep instantly, and sleep soundly until the electric lights flash upon us at a quarter after five, admonishing us that it is time to begin the day. Before breakfast I enjoy my work again.

Now, this work I am going to tell you about is not any thing particularly expensive—that is, it need not be; and any of you or every one of you can commence it (on a small scale) right in your own homes. Of course, you may have some difficulties to surmount; but where there is a will there is a way.

Now, friends, if you did not know me you would begin to be suspicious that I had something to sell; but the thought of it makes me feel happy again, for I can say, "Thank God I have nothing to sell, and no monopoly of the business." I have been happy because I have been getting wisdom and understanding; and, above all, because I have been daily and hourly—yes, and almost every minute—in touch with the handiwork of the great Father above. I have felt his presence as I studied his works. All my life I have enjoyed, as you may know, learning the whys and wherefores that I may control Dame Nature, and make her do my bidding.

Let me say briefly that this work I am talking about is growing plants over in that little greenhouse. You may say you have not all got a greenhouse. My dear brother

or sister, with God's help you can get one if you want it *bad enough*, if you are willing to pay the price. You can commence with just a window of your sitting-room or kitchen; but before I tell you about it I wish to diverge a little in order to get the point clearly before you.

Most of you have been studying the new catalogs of seeds and plants; but I hardly believe any one of you fully realizes the amount of work that has been done to *get* these new things that are delighting the world. I regret that it is not all honest work—that is, some of the pictures paraded are to some extent not really new, but most of them are. Now, read carefully the following, which I take from the last *Rural New-Yorker*:

AN ELUSIVE RADISH.

Being impressed with the scarcity of desirable summer radishes, the writer began, about ten years ago, breeding experiments looking toward the development of a type which would grow well during the summer heat, remain in good eating condition a reasonable time, and be of sightly appearance and mild flavor. Beckett's Chartier came nearest the ideal in mind at the time, but it requires about eight weeks to develop; and though mild, crisp, and tender when at its best, it soon grows coarse and pithy. To impart greater durability of texture, and restrain the tendency rapidly to run to seed, the Chartier was pollenized with a hard white summer radish of local origin, and the best of the resulting crosses, which were rather too pungent in flavor, with an unintroductory white Chinese radish the succeeding year. This induced the hybrids to "break" wildly, but a few roots retained the form and some of the crimson coloring of Chartier, though with hard texture and slow maturity. The long early scarlet and a forcing round scarlet variety were next successively introduced in the strain, and rigid selection began, after growing seedlings from the last cross. There was not as much variation among these later generations as might have been expected, but the looked-for type was very slow in developing until the eighth year, when it appeared at a bound, all the seedlings being much alike, varying only in proportionate length. The newcomer was of the Chartier type, pale rose shading to white in color, tender, succulent, and well flavored. It developed rapidly, but retained a small top, and was very slow in running to seed, standing in good condition several weeks in the hottest weather. Here, apparently, was a good thing, planned and worked for, but secured at last. The next year as grown from seeds saved from the most perfect specimens, they came so uniform that the only remaining defect appeared to be the shy seeding of the selected roots. The next year the new radish was planted with high hopes, but a great proportion failed to "bottom-out," running at once to seed like charlock or wild mustard. So complete was the reversion that except for the white flowers the degenerate plants could scarcely be distinguished from charlock. This was disappointing, but the best specimens of those showing no deterioration were isolated by the removal of all others, and seeds again carefully saved. The result of this last sowing revealed a general stamped toward the primitive wild radish—scarcely two per cent keeping to the improved type, which had seemed at one time in a fair way to become fixed—and in this abrupt manner our ideal summer radish slipped out of existence.

The uncertainties of breeding by hybridization special types of such economic and ornamental plants as must commonly be propagated from seeds, is thus detailed at some length as explanatory of the tendency of many high-bred strains, originally produced by cross-breeding, to fall away from the advertised standard. Mendel's law of hybridization, based on long and carefully conducted experiments, seems to show that the pollen and seed embryo cell of diverse plants of the same species or genus invariably unite in a definite manner, and that, however various the association of the characteristics of the parents may be in the progeny, the separate individualities are preserved, though often dormant, for many generations, and may at any time reappear with startling suddenness in individual plants. There will ever be much difficulty in fixing and retaining types produced by cross-

ing, where seed propagation is necessary, though occasionally a hybrid is so happily balanced that it seems to become a new species, and may be grown on indefinitely with reasonable care in selection.

W. V. F.

Friend W. V. F. has been at work for ten years to produce an ideal radish; but after he got it, like a wild colt out on the plains it got away from him, and there is very little hope that that *same* "colt" will ever be caught. Somebody else, by working ten years more or less, may get something near to his ideal. It is just like the strawberries. A strawberry having all the good qualities that a dozen others have, is not yet known. When we get it (if we ever do) a single plant will be cheap at a thousand dollars. Do you know why he could not hold his radish? The reason is this: Radishes must always be grown from the seed. You can not take slips as you do from a geranium, nor runners as you do from a strawberry; nor can you graft radishes as you would graft apple-trees, and bud peach-trees. It was because of this that our friend could not hold his beloved "wild colt."

Now, this work that has made me so happy has been studying the "cutting" business. That china dish of white sand has been my favorite tool, only I have a lot of dishes so I can start cuttings more or less every day; and then every morning and sometimes every afternoon I am delighted to find certain plants that had been behaving contrary have got into line, and are doing exactly what I wanted them to do. When we get at the *conditions*, the thing is easy. Oh how many times I have found this to be true during my busy happy life! I worked day and night trying to make comb foundation—burned my fingers, spattered my clothes, littered up the house, and it seemed only continual defeat. But little by little I began to "catch on," first to one important condition and then another; and now our young people down in our new wax-room would look up in surprise to hear there was ever trouble about it, the thing seems so easy and so natural.

Well, I could not make coleus-plants grow to suit me. Oh! I forgot to tell you I have been studying the catalogs and sending a few cents here, there, and yonder, for some new plants. Then before I could make cuttings I had to study this new plant, get acquainted with it, and find out how to make it grow strong and vigorous. Well, I have never succeeded with the coleus till this winter; and now I find it is one of the prettiest plants to make grow we have in the greenhouse. The reason I did not succeed was because I did not keep my forcing-bed *warm* enough. I supposed 80 degrees would kill every thing; but I was so stupid I did not consider that we sometimes have 80 and 90 in the summer, and it does not kill things either. With a bottom heat of 80 degrees, and the heat above as much as 70 or 75, with a confined moist air, the coleus grows like a weed, and shows the most brilliant colors I ever saw.

Well, most of these new plants are expensive. I paid 35 cents for a single geranium by mail. I had it in bloom in about two days, and in two days more I had some cuttings, so my plants will not cost me very much after all. From six golden-leaved salvias I have now 30 beautiful plants. That is about as many as I have room for.

During former winters I have been much troubled by the green fly, red spider, and mealy bug in my greenhouse. This winter I have had hardly a glimpse of insect foes. I banished them with what is called "nicotine punk," which I bought of the Skabura Dip Co., Chicago, at 60 c. a dozen rolls. Four or five rolls have kept my greenhouse absolutely free from insects all winter. This one thing makes a vast difference with a florist. Sometimes the stuff I order from away off is infested with mealy bug; but it is easily fixed by fumigation as above.

Well, this winter for the first time I have really got in touch with making plants grow by starting them in the smallest size of pot and giving them a larger one just as fast as they needed it, and no faster. When you learn the trade, and really get in touch with the plants, it is just wonderful how you can make things grow. A friend gave me a slip of *Impatiens Sultani*. I put it in the white sand, and a few days afterward something on the plant looked like a drop of blood, only it was more brilliant. I put on my "specs," carried it to the light, and found it was a little bud unfolding. The slip put out a beautiful blossom in that wet sand before it had even a speck of root of any sort. Surgeons are hard at work on the problem, and have at least partly succeeded, in having a human being live with his stomach entirely removed. In the same way we make a plant grow with vigor when its roots are *all cut off*—in fact, when it has not any sign of a root of any kind. Just get the temperature, moisture, and other things all right.

Well, about the time the blossom dropped I discovered little roots on the slip. I put it in the smallest-sized pot and put it back in my cutting-bed. In ten days the pot was full of roots, and it wanted more room. I gave it one just a little larger. In three or four days it wanted more room still. I bought some cinerarias. For two weeks they did not grow, and I thought they were going to die. I did not keep them warm enough. I gave them a bed where the temperature was from 60 to 70, bottom heat, day and night. Then they commenced to boom. I gave them larger pots, and larger still. I got them on the run, as it were, and it seemed to me they were really on the "double quick." Some of the strongest are now in eight-inch pots. The foliage is just wonderful (almost as "big as a cabbage"), and they are opening their brilliant glittering flowers while I write. I dropped the hose on one of them, and snapped off the center of the plant, buds, and two or three leaves. I felt as bad over it, almost, as if I had hurt a living being. In a min-

ute my spirits began to recover, for I thought of my spare saucers of white sand. I put it clear down so just the leaves and the buds were out of the sand; kept it wet and warm, and—would you believe it?—that bud without roots opened up before those on the growing plants. It was not sickly nor stunted. It seemed to say, "Oh! you need not feel particularly bad about the accident. I do not really need roots if you give me every thing else I want."

Well, the old plant has put out two or three branches of buds in place of the one I took off, and the new one is putting out roots, so I am going to have an *extra* plant, and possibly the old one will give an extra amount of bloom just a little later than the rest.

Now, what makes me happy is that I am making discoveries every day. They may not be new to florists, nor to somebody else in this big wide world, but they are new to *me*; and I am getting in touch with these new and strange forms of vegetation so I can hold on to them—not as our brother did with the radish that "eluded" his grasp just when he thought he had it for sure. And talking about radishes reminds me that, years ago, I worked several seasons for a white lettuce like the white-plume celery. I got so far as to put lettuce on the market that was part white and part green; but my patrons got a notion that the white spots were the result of putting some kind of poison on the leaves to keep off insects. Well, I finally got a few stalks that were all white, but they lacked vigor, just as the Madame Saleroi geranium, the one bordered with white, lacks vigor compared with the green-leaved geraniums. Now, very likely my feeble white lettuce might have been crossed so as to give it vigor, but I became discouraged and let it drop. Vaughan, of Chicago, advertises in his catalog a new variety of *Impatiens* (*I. Platypetala*). I have just to-day received three of the plants. The flower is larger than the old *Sultani*, and the foliage is quite different, although it resembles our old friend. I should judge it is a ranker and more luxuriant plant, because they stood right up strong in the full noonday sun. Of course, the new plants cost quite a little; but when you consider that one who knows how can multiply the plants with great rapidity, you will not mind paying 30 or 40 cents for one to start with. By the way, this *Impatiens Sultani* is perhaps more commonly grown as a house-plant than any thing else unless it is the geranium. A lady friend of ours had a beautiful plant two or three feet high, just covered with bloom. I asked her the name of it. She said she had never heard any name given, but she called the plant worth a great deal of money. When I came to examine it closely I saw it was just a beautiful specimen of my old friend.

I have seen some very fine ones in some very humble homes. Some people call them "balsams." The only trouble is they will not bear any thing like a freezing tempera-

ture, and are not nearly as hardy as the geranium, and they do not usually grow very much unless they have a pretty warm place near the stove. If it is not very light it does not seem to matter very much.

Now, we need not be discouraged by thinking it is only the florist who can have these beautiful plants. One day I made a wheelride of several miles to see a pelargonium (Lady Washington geranium). It was, perhaps, three feet high, and may be two broad. It filled the entire window fronting the street. The woman was not a florist, and did not know much about plants; but she had learned how to give this plant just what it wanted. When I asked if it was for sale she said she had refused five dollars for it several times; and she kept it season after season the greater part of the year covered with bloom. I never saw any thing to compare with it in any floral establishment. Cases of this kind come up frequently. Some of the finest house-plants the world has produced are in the possession of very humble people in very humble homes. Any ordinary home can be managed to furnish the conditions necessary to grow beautiful plants. You can commence this work any time anywhere, and almost without capital. If you succeed, by the aid of a sash or two, you can enlarge your window to a hot-bed, and, later in the season, to a cold-frame. When you get half a dozen sashes, with little expense you can have a little greenhouse where you can get inside to work and raise stuff to sell. Many large floral establishments have been started in this manner, on a very small scale. I bought my first azalia in Utica, N. Y. I visited several greenhouses, and finally found a place where the plants were not only greatly superior but very much cheaper. I asked the proprietor how it happened. He said something like this:

"Why, I am not really a florist. I commenced growing flowers for the fun of it, without any instructions whatever except what I got from books and periodicals. The other florists are all down on me because I do not keep up to their prices; but I should like nothing better than having a market for all I can produce, at the prices I am getting."

He was in love with his work, just as I am in love with mine this winter. By the way, when you are learning how, the very easiest plant to work with that I know of is the nasturtium. All you need is some nice seeds to start with. Better have one of the dwarf Tom Thumb varieties; and I would suggest Empress of India. Mine came from Burpee. You will not need very rich soil for nasturtiums (or "stertians"), especially for indoors and greenhouse. They will grow too rank. Mine began to grow too tall, so I cut off the tops of the whole of them. It seemed too bad to throw the tops away, and so I stuck them in a saucer of sand. In three or four days they were standing up so brisk and thrifty-looking that I pulled one out, and each cutting had

a mass of beautiful white roots; in fact, the roots were too long before I knew it. Better not let them stay in the sand until the root is over $\frac{1}{2}$ -in. in length. Some florists say, do not let them get to be over $\frac{1}{4}$ -inch.

After you learn how to make nasturtiums grow you can take other plants that are more difficult. We have succeeded in making some beautiful plants of cuttings of "Crimson Rambler" roses, but it takes two or three weeks to get them rooted. Almost any plant that grows can be made to take root when you get at the conditions and understand them. Even hard-wood trees can be propagated in the same way.

Now, the great point in this cutting business is that, by means of the process, we are enabled to hold fast to that "wild colt" that our friend got hold of when he was getting out the new radish. Luther Burbank, of California, has taught the world that we can have almost any thing we want (in the way of fruit) if we are willing to work for it a sufficient number of weeks, months, or years, as the case may be. I know I have written considerable on this same subject before but I firmly believe that one of the remedies, not only for our physical ills, but for the era of crime that is now casting a dark shadow over our nation—one of the great remedies for both sickness and crime, so it seems to me—is getting people busily employed in studying God's works. I have found health, even during this severe winter time, because I have been so busy and so happy. There is an unceasing demand for men (and women too) who are experts along the lines I have been treating. This work enables us to keep in constant touch with, and keep plainly in sight, not only the leaves and flowers of the plant, but the root-growth. I never enjoyed watching root-growth before as I have this winter; and when every thing is just right the microscopic roots push out and grow with wonderful rapidity. Again and again as I knocked the black balls of earth out of my little pots (or a big one, as the case may be), I uttered exclamations of surprise and delight to see a beautiful plant had done wonders in the way of root-growth when I least expected it. Be patient; work carefully; watch and inquire; get every thing just right, and your reward will come. And again and again it comes home to me that our children—yes, the babies as well as the boys and girls—are not unlike the plants. Parents seldom realize the possibilities that lie before their children. Many a mother has watched and waited and prayed as her gentle and loving hand guided the little mind that was intrusted to her care. Many times, perhaps, it has seemed as if the young mind was attracted only by evil; but finally she succeeds in sowing the good seed and *starting* right impulses in the little mind. It grows and develops day by day, and finally, before she suspects it—yes, before *anybody* thought of it—this boy or girl has budded and blossomed into a glorious Christian character. His work

will not only stand through all time but through eternity.

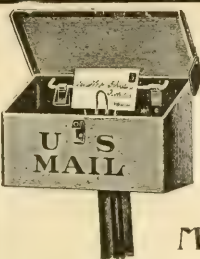
MECHANICAL AIDS IN OUR HOMES; HEATING AND LIGHTING BY ELECTRICITY WITH WINDMILL POWER.

Mr. Root:—Work out a plan to heat and light our homes by electricity by means of windmill power, and tell us all about it in your journal.

Waverly, Neb., Feb. 14.

G. R. NOREN.

Friend N., the thing you mention is already being done, but the apparatus is quite expensive. The Aermotor Co., of Chicago, will send you circulars telling you more about it than I can here. The principal difficulty is storing power sufficient to do the work when the wind does not blow. One way is to have an elevated reservoir in which to pump the water. Let this water run a water-motor, and you have it. Another way is to use a storage battery to store up the electricity until needed. My impression is the reservoir for water is cheaper and less complicated; and there is this in its favor—you can have the water for any other purpose you wish. The trouble with wind for all such uses is that there are times, perhaps intervals of several weeks or months, when you will have an enormous amount of power—enough to last through long periods; and then, again, there are considerable periods when there will be little or no wind. This necessitates a great amount of water—that is, if you are going to use electricity for heating as well as lighting. If you want to run only a few lamps, the matter is comparatively easy. Another thing, there is quite a loss of power by using it first to pump up water, and then convert the falling water into power again, and have this power run the motor. The world is now waiting for some cheaper storage battery, or for some short cut to apply the power of coal, or wind either, so it can be applied directly to the motor. The power from the windmill direct, as you know, is very uneven, even with our best-regulated mills. Unless you have a storage arrangement, either a reservoir of water or electricity, your lights would be first away down until you could not see, and then they would flare away up in a perfect blaze, burning out your fuses, and possibly melting your wires. The wind is all right for plenty of power; but it is, as yet, much like an unbroken colt. It needs taming. If any of our readers are using electric lights furnished by windmill power we should be glad to hear from them. An unfailing spring of water solves the problem easily. Even a very small stream, where you have a sufficient fall, will light your home beautifully; and if the volume is large enough it will also warm your rooms and do the cooking. I expect, this coming summer, to harness up a spring to light up our cabin in the woods. Perhaps I should say, rather, I am going to make some experiments in that direction.



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W. C. T. U.

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"The A B C scholar that grew so fast," was the way that A. I. Root used to refer, years ago, to Mr. E. A. Morgan, of Chippewa Falls, Wis. The reason that he used this expression was because Mr. Morgan took such wonderful strides and made such a success of bee-keeping. By the way, he has kept right on doing the same all of these years, but has not said very much about it of late. Knowing all this, you can imagine the pleasure with which I read the following letter:

CHIPPEWA FALLS, WIS., Feb. 8, 1902.

Friend Hutchinson:—I have 160 colonies of bees, and am breeding some choice queens for my own use. Last season I got hold of an extraordinary queen, and bred some queens from her. The bees from her daughters made nearly double the amount of honey stored by other stocks of the same strength. I traced her to Aug. Bartz, formerly of this place, and find that her mother came from you. I write to ask if you have any record of the queen sent to Mr. Bartz; and, if so, will you tell me where she was procured? I would also ask if you have any such queens for sale now? I shall want two or three in the spring, as I consider that queen that you sold Mr. Bartz as being of the best strain I ever knew, and I have been an extensive breeder since 1879. Write me.

Respectfully yours, E. A. MORGAN.

That queen was of the Superior Stock that I am advertising, and it was the receipt of just such letters as that, coupled with my own experience, that first attracted my attention to this stock. The man who buys this stock makes no mistake. By the way, if you wish to try a queen in the spring, don't wait until then before sending in your order. If you do, there may be so many orders ahead that you will have to wait until late in the summer before the order can be filled. Order now before the rush comes on. The price of a queen is \$1.50, but I guarantee safe arrival, safe introduction, purity of mating, and satisfaction to the extent that you may return the queen any time within two years and the money will be refunded, and 50 cts. extra sent to pay for your trouble. One queen, and the Review one year, for only \$2.00.

W. Z. Hutchinson, Flint, Michigan.

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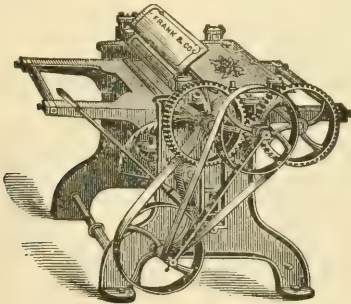
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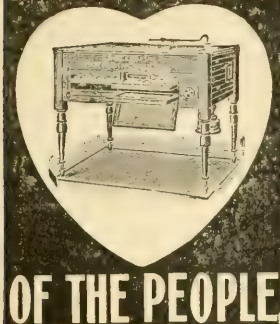
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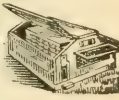
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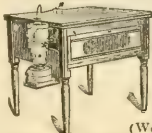
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WANTED.—Bryan Edwards' History of the West Indies. State year of publication, number of volumes, condition, and price wanted. A. L. BOYDEN, Medina, Ohio.

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WANTED.—To contract with Northern growers to furnish early garden plants to be shipped by express February to May. Onions, \$1.00 per 1000; other plants, \$2.00 to \$3.00 per 1000; can furnish onions in 100,000 lots. If preferred, will grow from seeds you furnish. I grow best early varieties. ALBERT WITTENMYER, Ormond, Volusia Co., Fla.

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WANTED.—To sell 100 colonies of bees, L. frames, \$2.50 each. H. VOGELER, New Castle, Cal.

WANTED.—To exchange for cash, beeswax, or offers, 1 12-in. and 2 6-in. Root foundation-mills. M. H. HUNT & SON, Bell Branch, Mich.

WANTED.—Correspondence with some progressive Christian who would like to secure a Southern residence and occupation in connection with a projected sanitary home and industrial school. DR. C. F. PARKER, Mentone, Ala.

WANTED.—Choice clean worker brood-combs, old-style Simplicity frame preferred. L. H. ROBEY, Worthington, W. Va.

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WANTED.—To exchange blackberry plants and job printing, for queens, to be delivered next summer. Price list free. B. R. YOUNG, Girard, Pa.

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WANTED.—To furnish best strains Barred Plymouth Rocks, and eggs. Eggs, \$1.00 for 13; 100, \$5.00. Fertility guaranteed. CHAMBERLIN HILL POULTRY FARM, Jordan, N. Y.

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WANTED.—To exchange the superior stock of red clover Italian queens for empty worker combs in Hoffman frames. PRESTON STORE & PRODUCE CO., Dority, W. Va.

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102 lbs. extracted and 68 lbs. comb honey per colony besides increase and stores for winter.

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Up to the present, January 30, I never found these bees to show the least indication of unrest—always perfectly quiet. They are wintering perfectly.—Frank T. Adams, Brantford, Canada.

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Out of those queens you sent me I have produced the best race or strain of bees I ever owned. Remember that is saying a lot, as I have tried every breed imported to this country. The bees winter better, build up, and stand cold chilly winds in spring better, and are more suitable than any bees I ever owned. For the season they gave me about double the honey the pure Italians did, and more increase. Glad you are going into the queen business, and are going to join our ranks again. We are much in want of a few men like you. C. W. Post, Ex president Ontario Beekeepers' Association (owns 365 colonies).

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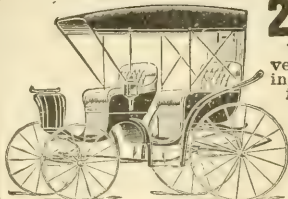
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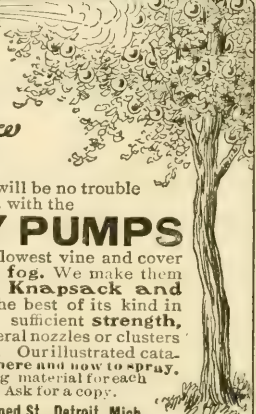
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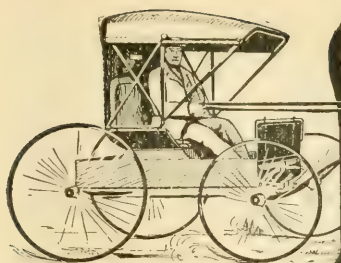
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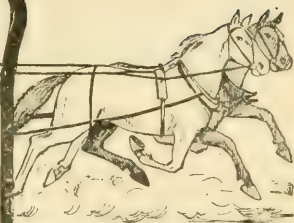
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AND THE PRICE IS ALL RIGHT, TOO.

A shrewd discerning buyer, scouring the market for the best values, cannot afford to be without our Catalogue. A postal will bring it **FREE**.

CASH BUYERS' UNION (Inc.), Dept. B-315, Chicago, Ill.

Buy Direct It will pay you.

JUST A WORD.

Any of our full line of Carriages and Buggies sent anywhere on **30 Days' Free Trial.**

How can we do this? Because we manufacture in our own factory all vehicles we sell. Get one of our free money saving catalogues.

Kalamazoo Carriage & Harness Mfg. Co., Station 10, Kalamazoo, Mich.

(Producers of the Free Trial Plan)

The DEMING

Field Sprayer

for spraying potato plants, strawberry and cotton plants, small nursery stock, etc. The potato spraying appliance shown in the cut above differs from the usual spraying outfit in that it is inexpensive. The outfit may be placed on the end of any wagon or truck, and a section of hose connected with spray pump. One man can do all the work without waste of material. Our free catalog explains our full line of pumps, sprayers, and treatment for diseases of trees, plants, etc.

THE DEMING COMPANY, SALEM, OHIO.

Western Agents, **Hendon & Hubbell, Chicago, Ill.**

BETTER THAN SPRAYING.

Don't lug barrels of water around when spraying. Use the poison direct. Our

Common Sense Dust Sprayer

and Insect Exterminator is a most ingenious device that is rapidly supplanting the old methods. It blows the finely powdered dust into every nook and crevice. Reaches the bottom as well as the top of leaves. Destroys insect life on plants, vines, shrubs and trees. Just as effective for vermin on poultry and pigs. More rapid than spraying. Descriptive circulars and testimonials free.

HILLIS DUST SPRAYER CO., Box 17, ST. JOSEPH, MO.

Wagon World Awheel.

Half a million of these steel wheels have been sent out on our own wagons and to fit other wagons. It is the wheel that determines the life of any wagon, and this is the longest lived wheel made. Do you want a low down **Handy Wagon** to use about the place? We will fit out your old wagon with **Electric Wheels** of any size and any shape tire, straight or staggered spokes. No cracked hubs, no loose spokes, no rotten felloes, no resetting. Write for the big new catalogue. It is free.

Electric Wheel Co., Box 95, Quincy, Ills.

POPULAR GOODS—POPULAR PRICES.

Matthews' New Universal

(Improved for 1902)

HAND SEEDERS AND CULTIVATORS.

Suitable for every class of work.

STANDARDS OF AGRICULT.

All styles. Only combination 1 and 2 wheel cultivator and drill made. Every way adjustable. All our tools have tough oak bent handles and are made of best material throughout. Send for catalog, describing complete line.

Ames Plow Co., 88 Market St., Boston.



A NEW HEALTH FOOD FOR POULTRY AND PEOPLE.

Our poultry-house, as I have already told you, is built over a strip of ground where exhaust steam runs through tiles under it from the factory to our home. This exhaust steam not only keeps the ground floor of the poultry-house warm, but it is as dry as the dust in the road on a summer's day, all winter long. Chickens scratch and wallow even when it is wintry outside and storming. Six feet above this warm ground, where their roost is, the temperature is seldom much below freezing, even though there are various cracks, left purposely for ventilation. I do not believe poultrymen have given sufficient attention to this matter of warming the ground *under* their poultry, by exhaust steam or otherwise. If dryness is desirable for fowls, we have it to a dot. Wherever exhaust steam is escaping into the open air unused, such poultry-houses may be had without any expense, except the first cost of construction. Why, we had two chickens hatched by a hen that stole her nest, the day before Christmas. One is now nicely feathered out, and the other would be if it were not for the dogs I am going to tell you about. To be up with the times, and get winter eggs, I bought a bone-mill. The people at our meat-market let me have a heaping half-bushel basketful of bones, containing quite a little meat, for only ten cents. We got along finely until the cats and dogs in the neighborhood acquired an appetite for ground bones as well as the poultry. One of our neighbors across the way has three dogs, and two neighbors next him have a dog apiece. I very soon discovered that, if I did not stay with the chickens until they had eaten up the bones I had ground, the cats and dogs would drive them away as soon as I was out of sight. After dinner I carry over the refuse from the dining-table in the factory. But one day I found *five dogs and five cats* waiting for the "cold victuals." Why don't I shut the chickens in, and so keep the dogs and cats out? Well, there is a strip of green grass right over where this tile carries the steam, where the chickens get out to get fresh air and pick grass during favorable days all winter. Another thing, our poultry-house is mostly made of hot-bed sashes. Broken panes of glass usually do no harm, for a great deal of the time the poultry-house would be too warm were it not for this abundant ventilation. In fact, it is so warm inside I usually hang my basket of bones on a limb of the evergreen trees outside. Well, when I got tired of wasting my strength in grinding bones for five cats and five dogs, they began to appropriate

my basket of bones *without* being ground. I commenced (thoughtlessly) hanging the basket down low; but as I gradually put it higher, the dogs learned to jump higher. Finally I told Mrs. Root that those dogs had really learned the trick of climbing trees. By the way, did you ever hear of the boy whose father overheard him telling a story about how their dog climbed a tree? The father interfered at this stage of the narrative.

"No, no, Johnny. Dogs do not climb trees. What are you thinking about?"

"But, father, the dog did climb a tree this time. You see he *had* to do it. There was *no other way*."

Now, my five dogs were a good deal like Johnny's dogs. There was "no other way" to get my basket of bones than to climb the evergreen-tree. Of course, I did not see them do it, for it was after dark; but the bones were tumbled about on the ground, and carried off. Mrs. Root suggested that the five cats climbed the tree, and, after they had gnawed off what meat they wanted, they tumbled the bones down to the dogs. Now, here is a point which Mrs. Root and I have not yet settled. But I leave it to you if her story is not as improbable as the other. Just imagine the cats sitting up in the tree and tumbling the bones down to a lot of ill-favored hungry dogs! Never mind. Just at this stage a lady over in Akron—a friend of our eldest daughter, Mrs. Calvert—told Maude to tell her father *she* could help him out of his trouble. Instead of using bones she said I should get some field corn and roast it in the oven, ear and all, and give it to the hens to shell off. She said that would make them lay as well as bones, or better, and the dogs and cats would not eat it. Well, Mrs. Root roasted the corn, but some of it was almost charcoal (by mistake) rather than parched corn; but I gave it to the "biddies" all the same, and the number of eggs increased at once. Now, I do not mean to say here that parched corn will take the place of bones. It started the hens to laying because it was a change of diet; and any change of diet, almost, will increase the number of eggs—a head of cabbage, for instance, nailed to a post so it will be just a little above their heads; or, still better, some Grand Rapids lettuce-trimmings. I rather think, too, that the *charred* corn is better than parched corn, at least for a change. You know charcoal is relished by most domestic animals, and it assists digestion; and there is not any better form of charcoal to be had than charred corn or other grains. When I was watching the poultry snap up the hot corn I tried some myself, and here is the great point of my story. I told Mrs. Root there was not another cereal in the market, to my mind, as delicious and appetizing as this parched corn. Another thing, I found it excellent medicine. I have been for some years more or less troubled with constipation. This parched corn is Nature's reme-

dy. A friend of mine has a sort of axiom that the best "medicine" for a sick *horse* is *grass*. In the same way I begin to think the best medicine for bad digestion is *corn*. Chickens can eat corn raw, but human beings want it cooked; and the most obvious and natural way to cook the corn is to roast it just enough so you can chew it easily, then eat it slowly, giving the action of the jaws time to bring up the digestive juices provided by nature. Take plenty of time to chew the corn very fine, and see if you do not decide it is not only the most delicious food, but that it is the best medicine for bad digestion.

In answer to my prayers for wisdom and understanding in regard to this matter of health, God directed me (at least so I understood it) to go up into the woods and live as I have told you. Now, I have been praying for years to have it made plain to me whether God wishes his children to take *drugs* when they are out of health, and I feel now that the answer is coming. Instead of drugs, use corn and other grains. To make them digestible, cook them by roasting, just as the Indians used to do. Try it, and see if you do not agree with me that it is a most delicious food as well as a grand substitute for any kind of medicine.

Special Notices by A. I. Root.

Wanted, sweet-clover seed, hulled or unhulled.

BASSWOOD (OR LINDEN) TREES.

Now is the time to take them up. We have a splendid lot of one foot and under, grown in our nurseries. Prices as follows: One foot and under, each 5 cts.; 10, 30 cts.; 100, \$2.00. By mail, each, 8 cts.; 10, 35 cts.; 100, \$2.25.

SIR WALTER RALEIGH POTATOES, SECOND SIZE.

Our second size are all sold out, but we have plenty of firsts. Charles Vanderbilt, of Lyons, N. Y. can fill orders for seconds at our prices—\$2.00 per barrel of 11 pecks, so long as his stock of 200 bushels lasts. Guaranteed true to name, and nice seconds.

COW PEAS, WHIPPOORWILL.

In addition to the cow peas mentioned in our last issue, we have made arrangements to furnish Whip-poorwill at the same price as the Wonderful; namely: Quart, 12 cts.; quart by mail, 15 cts. more; peck, 75 cts.; $\frac{1}{2}$ bushel, \$1.35; bushel, \$2.50. The above prices are f. o. b. Richmond, Va. We do not keep them in stock here.

HOW TO MAKE POTTING SOIL FOR GROWING BEAUTIFUL GERANIUMS.

We got a box of geraniums a few days ago that were so much ahead of any thing else I ever saw before in thrift, vigor, and rank luxuriance, as well as bud and bloom, that I wrote the grower for his recipe for making potting soil. Below is what he says about it:

The soil I use to grow them in is composed of one-half Jersey sand and one-half pure loam, with about 2 quarts of bone meal to the bushel. This sand was all washed out of the ocean at one time, and contains a good deal of fertilizing material in the way of phosphorus and very minute animalcules. Flowers do grow finely, out of it, and it is said they are more brilliant than anywhere else away from the seashore.

Ocean City, N. J., Feb. 20.

If you want to see the geraniums that are pleasing me so much, send to friend Moore for samples.

TWO NEW AND VALUABLE GARDEN VEGETABLES.

Our good friend Burpee was kind enough last season to send me a lot of seeds to test. I sent them up to our Michigan ranch, and when we got there we greatly enjoyed the finest green corn and wax beans I had

ever found before in my life. We laid it to the wonderful fertility of the virgin soil around our cabin in the woods. Unfortunately the labels were lost, so we could not name the varieties that pleased us so much; but in looking over Burpee's new catalog I recognized at once that the corn was his new "Cosmopolitan," and the bean was his new "Burpee's Brittle Wax." Not only was the quality extra, but the corn gave enormous ears, and the stalks went up over 6 feet high. In fact, they fed the carpenter's horses every day while he was building the cabin. The wax beans were loaded with pods, and kept on bearing clear into October. We have not seeds of these two valuable varieties this year, so if you want them you will have to send direct to Burpee, Philadelphia.

NEW BOOKS ON RURAL SUBJECTS.

There are so many of these nowadays, especially books on special subjects, and such extremely good ones too, that it almost bewilders one. The first we have is "Strawberry Culture," by our old friend Matthew Crawford. Price 10 cts. Now, any thing from the pen of friend Crawford is always valuable, and it is also interesting reading. This booklet of 60 pages is the boiled-down experience of years in testing and growing the best varieties of strawberries there are before the world. You can hardly name a plant friend Crawford has not tested on his grounds. Even though we have just put out a strawberry-book of our own, I am glad to see that friend Crawford has got in his book a number of bright hints that we did not get hold of at all. If this book had come out a little sooner I should have been glad to have noted them. We can mail the book from this office or you can get it of the M. Crawford Co., Cuyahoga Falls, Ohio. Although the author does a large business in selling plants he has not advertised his plants nor his business on any page of his book; in fact, you could not learn from it that he has any thing for sale at all.

The other book that delights my heart is entitled "The Cow Pea." It has 64 pages, a little larger than our strawberry-book, and some beautiful half-tone pictures. The book is a gem, and everybody who is at all interested in the wonderful things the cow pea is doing for agriculture, not only in the South but through many parts of the North as well, should send for it. I was almost disappointed to find there was no price on the book. When we were invited to make editorial mention of it the letter closed up with this:

Every reader can get a copy free by writing to the Superintendent of Experiment Farm, Southern Pines, N. C.

I suppose that the above means that every reader of GLEANINGS can have a copy of this beautiful and valuable publication free of charge by applying for it as above. I am inclined to think they will get "snowed under" with applications, especially after the book is seen.

Kind Words from our Customers.

GLEANINGS gets better and better, and it seems to contain more each number. D. W. ANDERSON.
Blacksburg, S. C.

THE TOBACCO HABIT AND THE CULTURE OF TOBACCO.

[On page 71 (Jan. 15) I suggested that a reform will come, even if it is true that three-fourths of all the men are using tobacco. Some of you may think I was a little "rattled" when I seemed to say that a one-fourth minority was going to rule the other three-fourths. Not "rattled" at all, dear friends. Even if three-fourths of our men are users of tobacco it does not follow by any means that the users are all in favor of having it grown and sold. The following kind word explains the situation better than I can do it myself.]

I wish Mr. A. I. Root could know how much I enjoy reading his Home Talks; and if he will only keep at the tobacco traffic I know of one at least who will try to give it up. I wish his sermons could be published broadcast over the land, for I know they would do an immense amount of good. May God spare him to this world for a long time yet, that he may continue his fight against sin and iniquity. If there is a man in this world that I admire for courage, it is the smiling face of a true Christian. W. C. WHITAKER.

Essex, Mass., Jan. 30.

Now Ready!

Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,
Wetumpka, Elmore Co., Ala.

QUEENS, QUEENS

Old Standbys.—The A. I. Root Co., to whom we have sold queens for many years, wrote us last May, thus: "Are you running low on queens? We hope not, as you seem to be our standbys. Send us 24 per week instead of 12, till further orders."

Beat Any Thing He ever Saw.—The Cyprian queens you sent me last year beat any thing I ever saw rearing brood and filling their hives with honey.—J. Nielson, Huntington, Utah, Sept. 4, 1901.

Is Great.—The nucleus you sent me last fall is great—the finest queen that ever crossed the plains. Please duplicate her this time. Mr. Jordan says the nucleus you sent him cast two fine swarms.—G. R. Warren, Fruitvale, Cal., May 12, 1901.

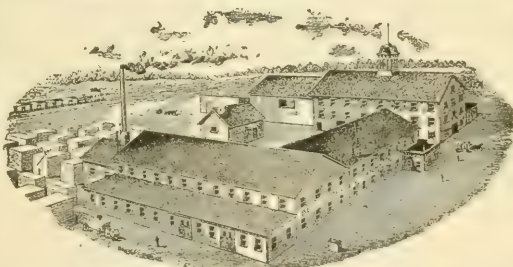
\$50 Queens.—My rice queen that you sent me, and I put in a hive with a handful of bees on the 6th day of last June, has now nearly filled her 30-lb. super for the third time. No man's \$50.00 bill could take her. Please send me another one like her as soon as possible, and keep a dozen ready for me like her for the 20th of April next, and I will make you a nice present.—M. Brown, Station A, Little Rock, Ark.

We breed Italians, Cyprians, Holylands, Carniolans, and Albinos, in separate yards, 5 to 20 miles apart. Prompt service. Safe arrival guaranteed. Fees by the pound, nucleus, full colony, or by the carload.

Prices: Tested, \$1.50 each; \$8.00 for six; \$15.00 per dozen. Untested, February, March, April, May, \$1.00 each; \$5.00 for six; \$9.00 per dozen. Fine breeders, \$5.00 each. Send for our catalog, free by mail; tells how to rear queens and how to keep bees for profit.

Agents for Dadant's Foundation and *Gleanings*. Premiums given. Don't fail to get our printed matter. It's ALL free. Bee-supplies of all kinds.

The Jennie Atchley Co., Beeville, Tex.



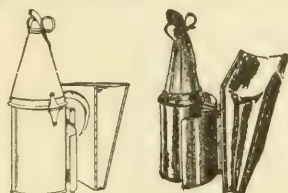
BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

— AGENCIES —

Kretchmer Mfg. Co., Box 60, Red Oak, Ia.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Ia.
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop ink drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire. Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

NEW YORK.—Comb honey is now pretty well cleaned up, and what remains on the market is nearly all fancy and No. 1 white honey. The demand is fairly good at the following quotations: Fancy white, 14; No. 1, 13; No. 2, 12. Extracted remains dull at unchanged prices with plenty of supply. Beeswax firm at 29. We have just received the first large shipment of new crop Cuban honey; some in tall sections packed 20 combs to the crate, and some in square sections packed 32 combs to the crate, glassed front on one side, p'ain, no-beeway section. The honey was packed in shipping-carriers, containing eight of the large and nine of the small crates respectively, and arrived in first-class condition. The flavor of this honey is very fine; and as to the quality, some of it is fancy white, while others is of a yellowish tint. We shall be glad to hear from any bee-keeper interested in this.

HILDRETH & SEGELKEN.

March 8. 265-7 Greenwich St., New York City.

CHICAGO.—The decline noted in last quotations are still more pronounced at this time; large offerings of Western comb are pressing for consumption, which are difficult to place. Prices are nominally 13@14 for best white, with travel-stain and light amber 10@12. That which is candied is selling as low as 7, with the

partially candied at 9@10. No great amount of dark honey is offered. Extracted is steady in price but slow of sale; white, 5½@7; amber, 5¼@5¾; dark, 5, according to what it is gathered from, and quality. Beeswax in urgent demand at 30.

R. A. BURNETT & Co.,

March 7. 199 South Water St., Chicago, Ill.

CINCINNATI.—The general tone of the honey market is lower. Water-white comb honey sells from 14@14½, and is hard to obtain; extra fancy, 15. Extracted has weakened a little, and sells from 5@5½; fancy, 6@6½.

C. H. W. WEBER,

March 7. 2146 Central Ave., Cincinnati, Ohio.

DENVER.—Demand for comb honey has been slow of late, but market shows some improvement now. No. 1 white comb honey, \$2.65 to \$2.85 per case of 24 sections; No. 2, \$2.40 to \$2.65. Extracted, 7@7½. Beeswax, 22@26.

COLORADO HONEY-PRODUCERS' ASS'N,

Mar. 10. 1440 Market St., Denver, Col.

SAN FRANCISCO.—Comb honey, 10@12. Extracted, water white, 5½@6½; light amber, 4@5½; dark, 4@5. Beeswax, 27½@30.

Feb. 27. E. H. SCHAEFFLE, Murphys, Calif.

BUFFALO.—Price of honey holds about steady, but demand slow. Fancy white comb, 15@16; A No. 1, 14@15; No. 1, 13½@14; No. 2, 12½@13; No. 3, 12@12½; dark, 11@12. Extracted white, 6½@7½; amber, 5½@6½; dark, 5@5½. Beeswax, 28@30.

W. C. TOWNSEND,

March 8. 84, 86 West Market St., Buffalo, N. Y.

BOSTON.—We beg to report a fairly good spring demand for comb honey, and from present indications stock will clean up in good shape. Prices range as follows: Fancy, 16; No. 1, 13@13½; No. 2, none. Extracted is in good supply and moves slowly. California, 7½.

BLAKE, SCOTT & LEE,

March 8. 31, 33 Commercial St., Boston, Mass.

SCHENECTADY.—No buckwheat and but very little white comb honey in our market, but owing to lateness of the season prices remain unchanged. Ample stock of white and some dark extracted still on hand. Prices unchanged. We quote fancy white, 15; No. 1, 13@14; buckwheat, 12@13. Extracted, light, 6½@7; dark, 6@6½.

CHAS. MCCULLOCH,

March 7. 1 Eagle St., Schenectady, N. Y.

DETROIT.—Fancy white comb honey, 14@15c; No. 1, 13@14; dark and amber, 11@13. Extracted white, 6½@7; dark and amber, 5½@6. Beeswax, 28@29.

Mar. 8. M. H. HUNT & SON, Bell Branch, Mich.

FOR SALE.—A quantity lot of well-ripened clover honey in 60-lb. cans.

B. WALKER, Clyde, Ill

FOR SALE.—8000 lbs. fancy and No. 1 comb honey.

WALTER MARTIN, Globeville, Colo.

FOR SALE.—Extracted honey from alfalfa, in 60-lb. cans, tinted or white, 7 cts. a lb. Also honey in small friction-top pails.

M. P. RHOADS, Las Animas, Col.

FOR SALE.—Whitest alfalfa honey, \$9.00; tinted, \$7.80, per case of two 60-lb. cans, net.

ARKANSAS VALLEY APIARIES, Las Animas, Col.

FOR SALE.—Two grades fine amber honey at 6 and 6½c respectively, and white honey at 7½c per lb. f. o. b. here. Sample free.

O. H. TOWNSEND, Otsego, Mich.

FOR SALE.—Fancy and No. 1 comb honey; about 2000 lbs. or more.

WM. MORRIS, Las Animas, Col.

FOR SALE.—Extracted honey, from alfalfa, at 7c per pound. Send for sample.

D. S. JENKINS, Las Animas, Col.

FOR SALE.—Clover and sweet-clover extracted honey at 7c, in kegs and cans.

DR. C. L. PARKER

Sta. A, R. F. D., Syracuse, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.

SEAVEY & FLARSHHEIM,

1318-1324 Union Avenue, Kansas City, Mo.

Victor's Strain of Italian Bees Awarded the Diploma as Being the Best Bees at the Pan-American.

BUREAU OF AWARDS.

PAN-AMERICAN EXPOSITION, }
BUFFALO, NEW YORK U. S. A. }
February 12, 1902. }

Mr. W. O. Victor, Wharton, Texas.

Dear Sir:—I have the honor to advise you that a Diploma of Honorable Mention has been awarded to you for your exhibit of Italian bees at this Exposition.

Very respectfully, WM. I. BUCHANAN,
Director-General.

Orel L. Hershiser Bought of Me an Untested Queen. This is what He Says of Her Colony:

"They are very industrious characteristically marked, and extremely gentle. It was a daily experience and repeated many times daily, to go into the inclosure with interested visitors, at the Exposition, open the hive, full to overflowing with beautiful bees, the progeny of the queen you sent me, and handle them in the various manipulations of hunting out the queen; shaking the bees from the comb, as is done in extracting, showing the brood in all stages, etc., all without the use of a smoker or any thing else to quiet the bees, and I do not recollect that any one ever got a sting from any of them."

Of the bees I exhibited at the Pan-American, he says: "The nucleus you sent for exhibition and award was certainly very fine-looking bees, and, in my opinion, they deserve the award given them by the judges."

But Who is Mr. Hershiser?

See *Gleanings* of date of Feb'y 1, 1902, page 97. Send in your orders for queens, and in a short time, as Mr. Hershiser and hundreds of others are now doing, you, too, will be singing the praises of "Victor's Bees." Price lists on application.

W. O. VICTOR, Wharton, Tex.

Queen Specialist.

Order a Swarthmore Outfit Now, and

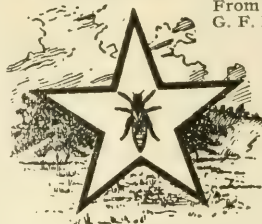
Rear Some Fine Queens

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Specialists use and recommend Swarthmore Queen-rearing Devices. Honey-produce are successful with queen-fertilizing attachments. Testimonials for the asking. Leading dealers will supply the Grace Cell-compressor, Improved Nursery, Fertilizing-boxes, Shell cups, etc., etc., or sent direct by addressing the Swarthmore Apiaries, Swarthmore, Pennsylvania. Orders booked now for Golden-all-over and 3-banded Queens and Bees. We export.

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VOL. XXX

MAR. 15, 1902.

No. 6.



IN GRADING HONEY, D. W. Working says, in *Amer. Bee Journal*, that the first essential is honesty of purpose. Right! in other words, Bro. Working, to have a conscience in *working* order.

I ENVY A. I. Root his enjoyment in starting cuttings. I've been there. February and March are, I believe, the best months for it. Say, A. I., have you tried starting begonias from a leaf or a piece of a leaf? It's fun.

I DON'T KNOW whether to congratulate C. P. Dadant or the *Revue Internationale*, the very able French bee journal, upon the fact that the former is now a regular collaborator of the latter. I think I'll congratulate both.

IT IS NOT WISE in some cases to kill a queen, even when she is old. Mr. H. Trokay reports a queen whose workers in four poor years gave successively 174, 165, 209, and 77 lbs. But none of her progeny equalled her.—*L'Abcille*.

REFERRING TO A STRAW on p. 91, L. E. Kerr wishes it to be understood that, when he said "There are more bees kept to-day in the old-fashioned box hive than any other one style," he meant more than any one style of frame hives.

G. M. DOOLITTLE says, in the *Am. Bee Journal*, that he has had in one colony bees by the thousand live from Sept. 1 to July 1, an important factor in their longevity being their *quiet* wintering. [That is orthodox according to our experience.—ED.]

I RESENT the insinuation, Mr. Editor, that I go around with hands slippery with honey (see last Straw, p. 179), and I much prefer washing them with soil, which I often do. But that sharp edge makes it easier to hold a smoker, even if your hands have just been washed with soft water and Castile soap.

F. L. THOMPSON did a first-class job in making a summary of the recent discussions on breeding, for the Colorado convention. It occupies three pages of the *Amer. Bee Journal*, and is interesting reading, even if you have read the discussions in all the other bee journals.

JUST FOR ONCE, Mr. Editor, I'm going to leave to you the last word in the Langstroth-Dzierzon matter; but if your wife doesn't want to be a widow, I advise her to keep you out of Germany. [That may be; but residents of the United States are in good favor with Germany just now.—ED.]

THE *Bienen-Vater* quotes the figures for cleansing wax with acid, given on p. 947. Dear *Bienen-Vater*, that was a mistake. Editor Alfonsus, kindly correct as follows: Um dunkles Bienenwachs rein zu machen, meistens ein Zusatz von 1 Percent Schwefelsäure genügt, und zwar ein Theil Säure und 100 Theile Wasser. Besonders schmutziges Wachs erfordert aber bis zu 2 Percent Zusatz.

DANDELIONS are a different thing in Medina from what they are "in this locality," according to what is said of them, p. 185. I count much on both the honey and pollen. One year I *shook* 2 lbs. of thin dandelion honey out of the frames of one colony. [I do not remember to have ever seen so much honey which I was sure was from dandelions in any one comb. I suspect the trouble is, we have so many bees in one locality that there is not enough dandelion honey to go around to make much of a showing.—ED.]

THAT RECORD of only 4 qts. of dead bees on cellar floor Feb. 23 is very remarkable, page 184. About the same date, and with nearly the same number of colonies, I had swept up six times as many dead bees, and I thought I was doing unusually well. Say, Ernest, can't you put machine-shops on your price list? I want to buy one to winter bees under. [I have all along believed that we were securing remarkable results; but in order to get these results the doors are open every night, no matter how warm it is outside, and closed before

daylight. Our regular apiarist is an early riser and an early-to-bed man; and as he sleeps in our factory, the opening and closing of the doors works like clockwork. The bees in our outyard, in the bee-cellar, are not doing as well. The cellar is damp, and ventilation limited.—Ed.]

C. P. DADANT says in *Revue Internationale* that nearly all of the wax in the United States comes from the South, the reason being that the northern bee-keepers do more reading of bee journals and books. And I wonder if it is not also because there is a larger proportion of dark honey in the South, hence a larger proportion extracted. [Your supposition is correct. There is more dark honey in the South than in the North. In the extreme South, and especially in Cuba and Mexico, it is profitable to produce wax rather than a cheap grade of honey, by converting such honey into wax.—Ed.]

DR. H. E. FISK, principal of Northwest-ern Academy, an important institution near Chicago, has advised students, who can not give up cigarettes, to leave, offering to refund their tuition. He says only two per cent of cigarette-smokers are in the highest grade, while 57 per cent are in the lowest, while four-fifths of those who persist in the cigarette habit ultimately fail in their studies. [I was surprised and pained to read in the papers that Prince Henry, who is now paying us a complimentary visit, is a lover of cigarettes. Such figures as you give ought to stop any sensible man from continuing in the awful habit.—Ed.]

THE BURLINGTON RAILROAD has heretofore rigidly enforced the rule against the use of liquor by those who had any thing to do with the running of trains. Hereafter the rule will be enforced against the employees of all departments, including even the track, bridge, and building departments. Here's the rule for all: "The use of intoxicants by employees while on duty is prohibited. Their habitual use, or the frequenting of places where they are sold, is sufficient cause for dismissal." How is that, Ernest? [Yes, and there are a great many roads that are going still further. If a man is seen going into a saloon, that is sufficient cause for his dismissal providing he can not give a good and sufficient reason for going there. The time is not far distant when every road in the country will have these rulings; and when the great corporations that employ thousands of men take the same stand we shall put the whole saloon business where it belongs, and thus probably do actually more to prohibit the use of liquor than any laws that can be enacted.—Ed.]

THE MANY REPORTS in European journals of drugs curing foul brood certainly looks as though the disease were milder there. E. Bochaty reports in *Revue Internationale* a number of cases cured by dropping in the corner of the hive every three or four days 15 to 20 drops of the

essence of rosemary. [We have very little faith in the application of any drug, no matter how powerful, administered in such small quantities as in the manner stated. The fact is, I believe that many of our European friends are confusing foul brood with several forms of dead brood that are comparatively mild, and disappear themselves. Two-thirds of the brood that is submitted to us for examination is pickled brood or another form of dead brood that is found sometimes in the summer, but which goes off of itself. Pickled brood in northern localities will very often disappear, and one might pour in a few drops of rosemary, salicylic acid, carbolic acid, or even salt water, and, because the disease disappeared, as it would naturally of itself, he would conclude he had struck a great remedy. I am satisfied in my own mind that foul brood, such as I have seen, would never yield to such treatment as that.—Ed.]

"NOR DO I CONSIDER any Italian queen as pure." When Bro. Doolittle says that, p. 182. I think that what he *means* is true, but that what he *says* is not true unless he uses the word "pure" with some meaning other than that found in the dictionary. From what he has said in other places, I understand him to believe that no Italians are of an entirely fixed or permanent character, in which he is probably strictly correct. But I do not know that in the term "Italian" there is at all involved the idea of strict permanence of character. If a man should order a queen, saying, "I want a tested queen, for I want to be sure that I have nothing but pure Italian," I think Bro. Doolittle would be able to fill the order, and it would not surprise me if at some time he may have sold a queen that the purchaser supposed was "pure Italian." If there is no such thing as a pure Italian queen, there is an immense amount of correcting that should be done in our bee literature. In looking over a half-page in the A B C I found just nine such corrections needed. Moreover, if no Italian queen ever sold was pure, an immense number of frauds have been committed by men supposed to be honest.



Responsive to the sun's approach,
Life springs from Winter's death;
The birds return, the grass starts up,
Revived by Spring's warm breath.

The *Review of Reviews* says:

Apples from America and Tasmania can be sold at a profit in London, when apples growing a few miles out of the city are left to rot on the trees, because the railroad charges are so high that the farmers can not afford to send them to market.

Just how far that affects the producers of honey would be an interesting question.

It's a little strange how much the British suffer from the attacks of the English, for, as the Premier of New Zealand says, one person in every five in London either dies in the workhouse or lunatic asylum.



L'APICULTEUR.

As to the advisability of using an extractor, Mr. Maujean replies to Mr. Sylviac:

By the universal consent of bee-keepers, the extractor is useful. And this concession is not made because of its novelty. The farmer knows too well the value of money to buy an extractor on the affirmation of an author or the say-so of another party. It is remarkable that the old bee-men have all been converted to the extractor, and those who remain behind do not say, "I am not convinced," but, "I am too old to adopt a new system." This would be reason enough to decide a beginner. . . . The extractor furnishes advantages enough in one year to justify one in not going without it. Mr. Sylviac believes that a bee-keeper using frame hives does not get any more honey than one using simply an empty hive. Unfortunately for Mr. Sylviac he speaks without any experimental knowledge, as he admits he has never owned an extractor. The writer had, for four or five years, medium crops of honey, sometimes none at all. He was almost discouraged, when he had occasion to read Bertrand's "Management of the Apiary," when he began to use the extractor. That was in 1889, and immediately, as if by magic, it changed the whole aspect of things.



AMERICAN BEE JOURNAL.

P. H. Harbeck relates the following incident:

I positively know that king-birds catch queens, for I was out one day with a shotgun watching for Mr. Bird, and just when it caught a bee I let go; and when I picked it up I found in its bill a drone and queen hanging to it yet alive, only one wing being torn off by the shot. I took it back to the colony that swarmed, and put it at the entrance. There came about twenty bees, going for her as if they meant to pull her to pieces; but that was not the idea, for they pulled something away from her, and then every thing was all right, and the queen marched right in, and the bees were as happy as could be. Since then I have no mercy for king-birds. I may be wrong, but I think they are not a bee-keeper's friend.



Prof. Cook has finished his Home Circle talks, and I can not better express my own view of them than by saying "me too" after the following, from the pen of Mr. E. E. Hasty:

Exit "The Home Circle!" A surprise for us that was not agreeable. Gone, but not altogether forgotten, Prof. Cook may be assured. In the real home circle it oft happens that the one who is gone is, in a kind of way, more emphatically permanent and present than those who remain. We can hope that some of the tender sentences of our "Home Circle" may enjoy a portion of the same sort of immortality.



In the issue for March 6 is the second article from Miss Emma Wilson, on how to begin bee-keeping. Although designed for green hands, these sketches "bristle with good points," as the saying is, and even the veterans can read them with profit; for the best workmen are those who continually keep in sight the principles of their craft. As these articles come from the household of Dr. Miller we may suppose they have his "O. K."



GATHERED BY A BEE.

"Say, Doolittle, do you suppose we could tell how much honey a single bee would gather?"

"I doubt it. But I have often thought if we look at the matter in the right light such an item may be made of interest to us if we study it from the right standpoint."

"How so? You know it takes thousands upon thousands of them to do any thing to advantage by way of honey-gathering; and to study just what one bee would do would be to look into an almost infinitesimal matter."

"Yes, I know it takes thousands of bees to make much headway at storing honey, and this is just the very reason why many mistakes have been made in the past, and just the reason why there may be a profit in looking into the matter of how much honey a single bee may gather."

"What about the mistakes? I don't understand."

"Some have been telling us all along during the past, 'keep your colonies always strong,' just as though a large number of bees in a hive, at all times of the year, was the thing to be always sought after, and a thing of great value. But right here comes in another side to this 'gathering' question. We have just been saying that it takes thousands of bees to make much headway at gathering honey; yet in this locality we very rarely have a yield of honey lasting through the length of life allotted to an individual bee, while many bees — yea, more than half which are reared under the most skillful management, never add an ounce to our surplus product. If every bee reared could have a field of nectar placed before it in which to labor, then the motto, 'Keep your colonies *always* strong,' would be the right one; but inasmuch as this can not be, and as bees at all times must be consumers, no matter whether producing or not, I can not now and never have been able to see the philosophy of having a colony strong in bees at such seasons when of necessity they can only be consumers. The time to have our colonies strong, with thousands upon thousands of bees, till the 'measure is heaped up and running over,' is just when our field is yielding nectar."

"Well, this is something I never thought of before, and I think I do see now why colonies always strong may not be to the highest advantage to the bee-keeper."

"Then right here comes in another factor in this question, which is the field, or that from which our supply of nectar comes from. In reality we must begin with the field, or, in other words, place that first; for without the field, or nectar-flow, we have no use for the bees. With a continu-

ous and uninterrupted nectar-flow within two miles of the hive during the whole time in which a bee lives, I think that a single bee might easily gather one ounce of honey, which would take only 16 bees to gather one pound, or 1600 to gather 100 pounds. And, if this were so, then 16,000 bees would be able to gather 1000, so you will see that the reason our thousands upon thousands of bees do no better for us than they do lies right here in the field."

"Surely, I can not gainsay that. But the bees must live out of what they gather, must they not?"

"Certainly. And I calculate of that amount it takes at least one-fourth of that gathered to supply the wants of the colony during the time a single bee is living; and unless the nectar is thicker than we get it here it would take 3 pounds of this nectar to make one of honey. So, then, we should have 750 lbs. of honey as the product of 16,000 bees during their lifetime, with an uninterrupted flow of nectar. While this might be possible, there are two things which make it improbable, the first being, as already spoken of, that the honey-flow does not continue long enough, and, while it is on, it is interrupted more or less by unfavorable weather; and the second is, that the yield would not be sufficient within two miles of the apiary, where many colonies were kept, so that the bees could work to the best advantage."

"Where did you get any such idea of the amount a single bee might gather in its lifetime?"

"In one of my many experiments, conducted some years ago, I had a colony which, on May 25th, I estimated to contain 4000 bees of field-working age. This estimate was gotten by counting the bees on a given surface of comb, and then dividing the amount of comb covered with bees by the space counted, when the quotient was multiplied by the number of field-bees counted on the first surface. The next day was a fine one, and apple-bloom was yielding nectar as well as I ever knew it to. At 7 A. M. the bees began to go to work, and at 8 A. M. I found that, on an average, 60 loaded bees were going into the hive each minute. One was caught and killed, which I found, upon dissecting, had a fair-sized drop of nectar in the honey-sac. By a careful estimate and weighing I found that it would take about 3600 such bee-loads to make a pound, so I concluded that 4000 bees were good for the gathering of one pound of nectar each hour, besides caring for the interior of the hive as to what was there needed. Before a bee had left the hive in the morning I had weighed the same so that I could tell when night came how much nectar the colony had gained. They worked right along at the average rate of 60 per minute till 4 P. M., when they began to slack up, and at 5 P. M. all had quit work for the day, as the sun went behind clouds soon after 4 P. M. I now weighed the hive again, saying, as I did so, that, if my es-

timate was correct, it should weigh 8 lbs. more than it did in the morning."

"How near to the amount did you come?"

"I found that it weighed 8 lbs. 9 ounces, thus showing that my estimate was not far out of the way. But what was a great surprise to me was that, when weighed the next morning, I found that the 8 pounds 9 ounces gain of the day before had gone down to 3 lbs. 12 ounces, thus showing that the nectar just from the flowers was not all honey by any means."

"I suppose this set you trying to secure apple honey."

"Yes, I became infatuated with the idea that there could be as much honey obtained from apple-bloom as from basswood, if I could only succeed in getting the population of the hive up to 40,000 instead of 4000; so I began trying that old advised plan of having my bees always strong, especially in apple-bloom; but after an entire failure of apple honey for the next five years, on account of the trees failing to bloom a part of the time, and cold rainy weather during the years when they blossomed, and that at a cost to me of much extra work and stores, I gave the matter up, and came to the conclusion that the *always-strong* idea had not been fully looked into—only trying to have the bees strong so as to take advantage of the generally good weather, and the regular yearly bloom of the basswood, which is our main honey-flow here. But I see the time is up when I must leave to meet an appointment. Before going, however, I wish to say this for you to carry home to think about: First we have the field or location we are in, of which we should have a thorough knowledge; next we have the bees, which are to be secured to the maximum numbers, just in time to take advantage of the main honey-flow of our field; and, third, that a bee is of little value as a honey-gatherer only as it can be placed in the field of action just at the right time; hence we should not encourage brood-rearing at all other times, only in so much as is necessary that the life of the colony may be preserved in good condition for this main rush of brood to bring about the thousands upon thousands of bees just when they are wanted. In this way the quantity of honey which a bee can gather in a lifetime becomes of interest to us, that we may work assiduously to have that lifetime come when our field is yielding its greatest amount of nectar."

L. W. A., Texas.—You can induce comb-building in your locality—that is, providing the temperature does not go below 70 or 80, by feeding liberally sugar syrup, or any cheap honey you may have. The idea is to get the bees prosperous and fairly fat. I would not advise you to use any substance like tin to support the foundation for comb-building. We consider fine wire very much cheaper, and it answers all reasonable requirements.



REPORTS so far indicate general good wintering, and the prospects very favorable. The heavy snows in the North have put the ground in fine condition, and preserved the young clovers.

AS I have been taking so much space in GLEANINGS of late, it seems to me only fair that in this issue I should give our correspondents more room than usual, and I am, therefore, cutting down the editorial space.

THE bees in the cellar under the machine-shop are beginning to make a loud protest. The thermometer stands at 60. The noise would quiet down providing we could let in fresh air without also letting in the light. Too great warmth stirs up activity, with the result that the air is rendered more or less impure.

I AM not able to continue my series of travels in this issue, on account of the failure of the paper-mill to supply the right grade of paper to print the half-tones on, which we have been using of late. I expect to resume the series in our next issue; but in the mean time we are enabled to publish some articles that have been held back for want of space.

MR. W. FRANK MCCLURE, the well-known newspaper correspondent, and writer for a number of prominent magazines, such as the *Ladies' Home Journal*, *Review of Reviews*, *Country Life in America*, etc., called at the Home of the Honey-bees to gather some facts for a write-up that he has in contemplation. I spent nearly all day with him, explaining the modern methods of bee-keeping and some of the peculiar habits of bees. I then told him how the bee-keeping industry had been damaged by the comb-honey canard. He promised to set the facts forth through the newspapers for which he is a regular correspondent. At the same time, he proposes to prepare an article or two, with illustrations, for some of our leading magazines.

AN ASSURED HONEY CROP FROM CALIFORNIA.

JUST as our last issue was going to press, containing the statement that the long-looked-for California rains had not come, and that there would probably be no honey from California this year, we received several letters from our friends on the coast, to the effect that the long-expected rains had come, making in all about 9 inches, and that all the bee-keepers were wearing broad smiles. Some even went so far as to

say that the rains were as copious as those that came in 1884, but this, I think, must be a mistake. This kind of news, while it brings joy to our friends in the Golden State, may be depressing to the bee-keepers of the East; but we see no good that can come from concealing the fact, as it is bound to leak out. If there is to be a honey crop in California it should be known.

SHALL SWEET CLOVER BE OUTLAWED IN OHIO?

SECRETARY MASON, of the National Bee-keepers' Association, recently called my attention to the fact that a bill has been presented in the Ohio Legislature (House Bill 598), the purpose of which is to class certain plants as noxious weeds, and among the list is named sweet clover. Whenever complaint is made, the township trustees are directed to cut down, or cause to be cut down, all such weeds.

We immediately wrote to our Representative and Senator, stating that sweet clover is grown in the far West as a forage-plant on the arid lands where nothing else will grow; that among the progressive farmers of the East it is not regarded as a weed, and when it has attained a certain growth stock are turned loose in it. We also stated that our Ohio Agricultural Experiment Station at Wooster had issued a bulletin telling of the value of sweet clover, stating that it is not a noxious weed, and never ought to be outlawed. I wrote the Station, and received from Director Thorne the following letter:

OHIO AGRICULTURAL EXPERIMENT STATION,
C. E. THORNE, Director.

Wooster, O., March 10, 1902.

MR. A. I. Root, Medina, Ohio.
My dear Sir:—If you find any serious attempt to have sweet clover declared a noxious weed, please let me know. I should consider such a declaration about as wise as one to call red clover such a weed and will fight it with all my might. I was one of the first to call attention to the peculiar habit of this plant of growing on soils where no other plant will thrive, a little article of mine on this point having been published as far back as 1877, and quoted throughout the range of the agricultural press.

Yours truly,

(Dic. L.) CHAS. E. THORNE, Director.

Since the above was written I have received other assurances from the Director that he will use his influence against so foolish a measure.

Our subscribers in Ohio are requested to write at once to their Representatives and Senators. Do not put it off, but do it now as soon as you read this, otherwise your protest may be too late.

In the mean time bee-keepers of other States would do well to watch their legislatures to see what they are doing. There has been an effort made to class sweet clover as a noxious weed in several States. Wherever such laws have been passed, so far as I know they have been repealed; but there are certain old-fashioned farmers who call it a weed, and every once in a while they manage to get in a bill before the legislature providing for its annihilation.



MARKETING COMB HONEY.

The Secret of Getting Good Prices; Slipshod Methods.

BY M. BROWN.

Mr. Root:—Your editorial on page 909, scoring honey-producers for their sluggish (and in part it may be called corrupt) practice is timely, and ought to have a wide circulation, because it is of great importance to honest producers and in stimulating the markets. I am not a large producer, nor one who has had large experience in bee-keeping, dating back for only three years. When I began three years ago I had to peddle out my honey in order to get 15 cents per pound for nice white comb; 10 to 12½ cents was the market price, so considered, for all classes of honey. The second year nearly all my honey was sold at my house at an average of 17½ cents per pound, which very much encouraged me, and was a source of pleasure.

On the 8th of May last, my number of colonies had increased from 7 in 1899 to 60, with full supers of nice white honey. I was compelled to try again the markets. Peddling was out of the question. I crated my honey under the rules laid down in GLEANINGS, in three grades; loaded my wagon, and called on our best groceries, offering to leave a crate with them. Most of them had honey out of commission houses, and did not want any at 15 cents when they could buy it at 11, to which I replied that I simply asked their permission to deposit a crate of my honey by the side of what they had; and if they could not sell it in a reasonable time and pay me 15 cents for it I would take the honey back, and pay them storage if they desired. My address with guarantee was written on the crate with that understanding. My honey was soon deposited. I went about my work, and, bless you! two days afterward a grocery wagon came in front of my yard with an order for 200 pounds of just such honey as I had deposited with them, with an invitation to come and get my pay, and 16 cents was agreed upon for fancy white and No. 1 of any kind of my grading. Four houses got all my honey this season, and I had to make but one trip to the city to sell my crop.

But here comes what I wanted to tell: Other producers came to me and asked me to sell their honey for them, saying they could get but from 10 to 12½ for theirs, and wanted to turn it over to me at that price, to which I finally consented. But, let me tell you, I soon learned that it would not do at all to attach one's name to another man's product. I had to be good and take back a large part of my friends' honey.

One consignment from an old bee-keeping friend from a distance was, I am sorry to say, an outrageous conglomeration, clearly exhibiting an incentive to deceive, or for immediate profit, regardless of honor or repute. Our market at present is flooded. Agents with consignments arrived, and are drumming it out in all parts of the city at from 10 to 12½ cents; but my customers will not handle any of it at any price. One of my customers who has been in the grocery business all his life said to me a few days ago that he had not the least idea that so much honey could be consumed provided a fine article in nice condition was offered. His experience showed him that a nice article will bring fancy prices and largely increase the consumption. He said, "Your honey sells at the rate of one crate per day, while with commission-house honey three to four crates last a whole season; and I must say that, if you bee-keepers were more honest, your markets would vastly improve, and the consumption of honey would displace the so-called fancy syrups which are a manufactured poison at the best."

Now, Mr. Editor, being only a small producer, my argument provoked by your recent editorial can not produce much weight in correcting the evils that exist. But it does seem to me that, if there were a little more honesty practiced, together with more intellectual practice, all would be vastly benefited in the end by producing a larger consumption and a more staple and uniform price. Every poor or bad section of comb honey put on the market acts as a drawback in the market instead of a stimulant. The actor in the drama may be profited immediately; but when he again has honey to sell he must very likely seek another buyer, and may succeed in finding one, and may keep that up for a period; but what does he do toward increasing the consumption of honey, and improving the market? Well, they have done this: They have disgusted the consumer by placing an inedible chunk of honey before him; they have discouraged the merchant, flooded him with complaints from his customers, and actually caused him to lose good customers of his house by the sale of inedible honey so treacherously concealed in crates, and unsuspectingly unloaded on them.

Now, Mr. Editor, I have no interest in this matter; the honey that I produce will always find a good market; but that inclination to deceive others in this manner is rampant, and is very damaging to bee-keepers' interests—I mean to those of honor and integrity; besides, it largely tends to demoralize the markets, which affects all producers; and I for one would advise those in that habit to quit the business and go and do something for which they are better fitted.

There is one other matter that interests me, which is that of statistics. I see the thing is up, and ought to have been up long ago; but I would say on this subject that the National Bee-keepers' Association

should be the one authority to take the honey statistics of this country, if the bee-keepers wish to derive any benefit from it. It will not be difficult for our journals to locate the producers and send them proper blanks to be filled out and returned at a given date to the secretary to be compiled and published under the authority of the organization. You will find it more reliable than any thing else you can get. My reason for making this statement is that I have been a statistical correspondent for more than 20 years, and have fully enjoyed the honor and the profits of the position, which would average about 10 cents a year in seeds. I do not wish to cast any reflection upon the head of the division; on the contrary, Mr. John Hyde is doing wonders with the means at his command. Suppose the department would add a honey column to its blanks now sent out, not one in 500 sent out would be filled out practically, intelligently, and with reliability. A statistical correspondent should be a practical as well as experienced man, and at times will have to lose time to procure correct information on certain subjects. I made many trips, and lost time and horse hire thrown in, for the benefit of the good and generous public; but I do not believe there are many who will lose time to procure correct information to give to the good public, just for the honor of the thing. On the other hand, if the National Bee-keepers' Association sends out blanks to practical bee-keepers, nine out of every ten will make a correct report; will take pleasure in returning the best information obtainable, because they will all be interested in the reports, and it will not all or nearly all be guesswork and exaggeration.

Little Rock, Ark., Nov. 25.

(Those who make a business of buying and selling know only too well that the great mass of bee-keepers do not understand the importance of putting up a first-class article. The great bulk of the comb honey that goes on to the market is unscrapped, a great deal of it is travel-stained, and much of it is poorly filled out, and, as a consequence, it goes begging; but a really first-class gilt-edge comb honey will sell on sight at good prices.

Yes, we do need reliable statistics, and I hope things may shape themselves in such a manner that the National Association can take hold of it.—ED.)

QUEENS REARED UNDER THE SWARMING IMPULSE.

Fertilizing Queens in Upper Stories; a Simple and Practical Plan for Grafting Cells.

BY F. GREINER.

What interests the honey-producer most is how to get a good crop of honey. He will leave no stone unturned to secure it. The wise and experienced bee-keeper also

knows that he must have his colonies in as good condition when the honey season arrives as is possible and practical. One of the essential things to get the colonies into best condition is, to have good queens. In buying queens we do not have full assurance that we are getting good queens. If we raise them ourselves, we at least know what the parentage is on the mother's side. We can select our breeding mothers. We also know that they have been handled carefully.

It is often said queens reared under the swarming impulse are better than such as are reared at other times or under different conditions. How true this is I do not know. This much, however, I do know: Queens may be reared during this swarming-period more easily than at other times, so I prefer to rear them for my own use during June and July, the regular swarming months. If the weather is favorable the last third of the month of May, when the apple-trees and other fruit-trees are blooming, then is a favorable time to begin.

Some honey-producers will use swarming-cells from any of their colonies. I did this myself years ago, but such a practice can not be recommended. There will always be found a very few colonies in a yard that outstrip the rest, not only in the larger honey-yield but also in their milder temperament, better markings, color, or other good qualities. From such we should breed, providing we are satisfied the stock is of pure blood, be it Italian, German, or other blood. I usually select one or two queens to breed from. The colonies containing them need not be crippled by drawing on them for brood. Since we have become familiar with the newer methods it is not even necessary to mutilate brood-combs to obtain brood for our purpose. By means of some simple and suitable tool, I prefer to use a small camel-hair brush. We can remove young larvæ from any brood-comb containing them, without difficulty, and without the least injury. This trick of transferring larvæ is not a very late discovery. It was first brought out by Mehring, a German, who is known as the inventor of comb foundation. He had found difficulty in having certain colonies start queen-cells from selected brood, they seeming to be bound to use their own for the purpose. He finally hit on the idea of supplanting the larvæ in the cells started with other larvæ from his selected stock, and he succeeded in thus fooling the obstinate colonies. For some reason Mehring's discovery did not then become universally known, but of late years has become a general practice. I do not know that it is necessary to say much more in regard to this art or trick; still, I will tell just how I proceed.

In the first place I go to my breeding colony and get a brood-comb containing young larvæ. Almost any comb contains some at this time of the year. This I take to my workshop, and place it upon a cloth-covered board in front of the window. In order

to let the light fall into the deep worker-cells it may be necessary to tip up slightly the brood-comb (board and all). I then select a larva of proper age or size, insert the little brush into the cell containing it, and, by a twisting motion, pick up the larva which adheres to the tip of the brush. It is then transferred to one of the artificial cups by my side. With a twisting motion the brush is quickly withdrawn and the job is done. Each cup is thus stocked up. The comb of brood is then returned to the colony it was taken from.

A colony which is making preparations to swarm is well suited to build our cells, or, in other words, rear our queens; but in order to be on the sure side I always remove the queen from such a one, and also several of the brood combs. Those that are left have to be looked over for cells once or twice, till the danger of cells being started on them is past. Immediately after the queen has been removed, a vacant place for one comb is made in the center of the brood-nest. A brood-frame is so fitted by cutting notches in the end-bars on the inside as to admit the insertion of three or even four bars parallel with the top-bar, the first one being about $\frac{3}{8}$ inch below the top-bar, the next one 2 inches below the first one, the third one 2 inches lower than the second, etc. These middle bars, as I call them, are provided their whole length with narrow strips of comb, and to these are glued artificial queen-cups (from 15 to 18). The strip of comb is used in order that the queen-cells, when ripe, may be easily cut from their bars without any risk of injuring the cells. Only one bar with its 15 or 18 cells is given to the prepared colony at this time or at one time. These cups have been provided with a little jelly before they were stocked up with young larvæ. The queenless bees are very apt to accept about every larva given, and will at once proceed to lengthen out the cells and feed the larvæ.

If a great many cells are wanted as quickly as possible, such accepted cells may be given to any other colony to finish. Said colony should have brood in an upper story with queen-excluder between lower and upper, and queen in the lower. The colony from which the accepted cells are taken must then be supplied with a second set of newly stocked-up cups, which, when accepted, may be removed and finished by another colony, etc. Ordinarily I make the queenless colony not only start but also finish the cells. In this case a new set of stocked-up cups are given every third day, so that, after a while, there will be cells of various ages in this one hive. It is very necessary that a careful record be kept of these cells; and as soon as they have come near maturity they must be removed.

The arrangement, as I have described it, makes this removal very easy. All we have to do is to slip out the bar with cells attached; and, if we are ready for it, insert another in its place with fresh queen-cups, as spoken of several times before. A colo-

ny may be kept at building cells in this way for a long time, providing a comb of brood is given it from time to time. It goes without saying that these combs must also be kept track of, for it is not impossible that cells may be started on them by the bees in addition to those we give them.

On the eighth or ninth day after giving a comb of brood the same is looked over, and what cells may have been started are removed. It is, however, rare that any are found. The bees seem to be satisfied with those artificial cells we give them from time to time.

We have now gotten as far as to have the cells, some of them, near maturity. After having had some experience in the matter of selecting larvæ for queen-rearing we shall be able to select such as are of proper and uniform age, and we shall also be able to determine very nearly when each set of cells will hatch. We all know the raising or producing of the cells is the most inexpensive part of the business. The expensive part is having our young queens fertilized. I was once very enthusiastic on the Doolittle plan of getting the queens fertilized from upper stories with full normal colonies below. Now, while I have not been successful practically in this I will relate briefly how I proceeded. It may prevent some one going over the same ground, and be saving money and time; or some one may be able to tell me or suggest why I have failed, and give the remedy.

The upper stories, as I used them, were made as follows: They were half-story bodies, divided into three compartments by wood division-boards nailed in solidly. Each division or chamber was sufficient to hold two or three combs. Each wood division-board had a piece of queen-excluding zinc inserted. There was also a zinc excluder nailed under each story, so there was a connection, vertically, between the brood-chamber and these apartments above as well as laterally between the apartments. For the sake of experiment, some of the upper stories had the central chamber *only* connected by zinc with the brood-nest below. Wire screen was used to prevent any direct connection between the outside chambers above and the brood-nest below. By not putting a queen into these central chambers you can readily see a queen can in no way meet another queen except by having fine-meshed wire screen between them. I had great faith in this last arrangement if not in the other. In addition to this I also tried these queen-fertilizing chambers on colonies that had cast swarms, so that there were *only* young queens in the hive. I stocked up a number of these chambers. Some I placed on top of supers where bees were working in sections. While I succeeded in getting a few queens fertilized, on the whole it was a failure, and for years I have made no use of the fertilizing stories or bodies. In fact, I have not hit on any plan (*the Swarthmore included*) by which to get queens fertilized,

except by the old-style nucleus plan, which I need not describe here.

Where colonies are allowed to swarm naturally a very good use may be made of our matured cells by giving each mother colony, after swarming, one of these—removing, of course, all other cells they may have in their hive. It may be found necessary, some time after, to look each colony over again for cells, and remove them, if colony is not treated by the Heddon plan. On the whole I rather like this way of propagating our best stock. All colonies that swarm can thus be easily provided with queens from superior stock.

Naples, N. Y.

[Queens reared under the swarming impulse are, as a general thing, large and vigorous, although I believe it is possible, under proper management, to produce artificial conditions to secure queens that will be just as good; but those conditions must combine some of nature's plans.

Your plan of grafting cells is, I believe, simple and practical. We have done a great deal of grafting—in fact, we believe all progressive queen-breeders make a practice of it, because there is no way by which selected stock can be secured in a wholesale way except by this plan.

We have tried all methods of having queens fertilized in the upper story; but when perforated zinc only is used between the upper and lower stories, or between the several compartments, the plan is liable to prove a failure. But we have been very successful in using upper stories by separating the brood-nest from the supers by means of wire cloth, then making each compartment "upstairs" entirely distinct and separate. On this plan the warmth of the cluster below rises up through the wire cloth into the nuclei above. This enables us to use weaker nuclei. So far our results in getting queens fertilized by this plan have been very satisfactory.—ED.]

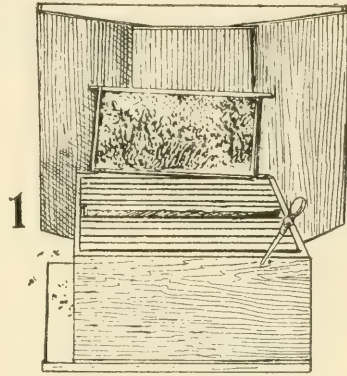
THE SWINSON JUMBO HIVE.

A Peculiar Arrangement.

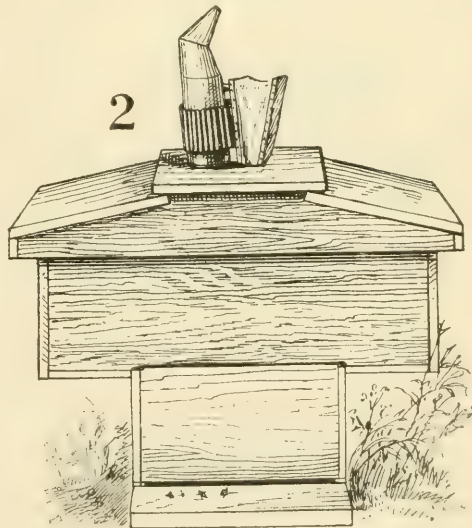
BY ABBOTT L. SWINSON.

Mr. Root:—In response to a request of yours I send you herewith prints of our "Jumbo" hive, which is intended either for comb or extracted honey, and which will excel any other hive I ever saw for the production of honey in any form. Its chief advantages are, in brief, plenty of room without (constant) changes during a honey-flow for a good yield. In sections where the flow is heavy and of short duration it beats the world. This characteristic feature of the entire South shows up the qualities of this hive, A No. 1; bees may store 112 lbs. of honey by climbing up to the skies to do it, and hence it is done, and done without loss of time. Honey will remain longer on the hives without discoloring. One person may

produce twice as much honey within a limited period. There is much less clustering of bees on the sections after they are completed, etc. We had several colonies that produced 140 lbs. of comb to the hive, inside of four weeks, last spring.

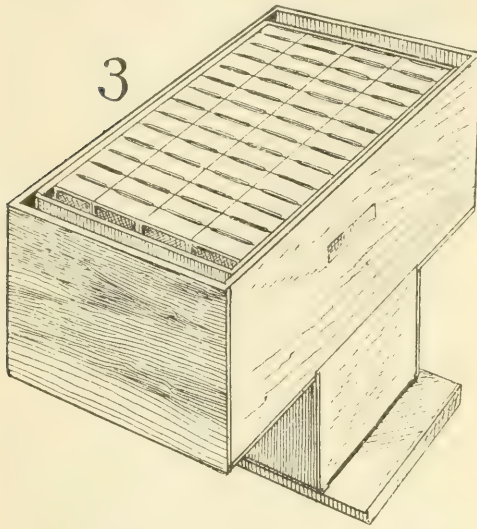


This shows the brood-chamber with 10 L. frames, with one raised and leaning against the cover of the hive, which sits on end on the ground, with the top side to the front. The top side of the frames comes perfectly level with the top edges of the hive.

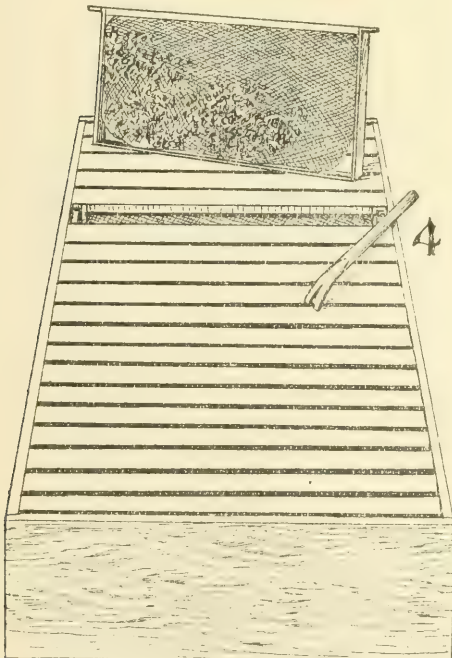


This shows an end view of hive on stand, and closed. By this it may be seen that the surplus apartment is twice the width of the brood-chamber, and is cleated on top of the brood-chamber by close fitting of the bottom plank of the surplus apartment. This manner of fitting brings the bottom of the *inside* of surplus apartment on a level with the top side of the brood-frames in the brood-chamber. The cover is made gable-shaped, as shown, and ceiled with

thin boards crosswise, and so arranged as to have a cleated edge all around it to prevent its blowing off.



This shows the hive with the surplus apartment filled with 112 sections, size $1\frac{1}{8} \times 4\frac{1}{4} \times 4\frac{1}{4}$, contained in two section-cases (containing 56 sections each), sitting one on top of the other.



This shows the surplus apartment filled with 20 L. frames of combs, as arranged for increase or for extracted honey either.

One of the combs is raised up, and sits on top in full view. The brood-chamber takes 10 L. frames, and the surplus apartment 20 frames or 112 sections, size $1\frac{1}{8} \times 4\frac{1}{4} \times 4\frac{1}{4}$, either as the operator prefers.

The inside of the brood-chamber is 15 inches. The inside of the surplus apartment is 30 inches.

This hive is a model of my own, and fitted for best results by practical experience of years. Where you want either plenty of surplus room in a short space of time for a good yield, 112 lbs. of honey, without disturbing your bees to put in more sections during a honey-flow, or plenty of room without notice, the entire season, when the yield doesn't exceed 112 lbs., it allows you to do your work before honey-flow begins for whole season, to 112 lbs. per colony.

Macon, Ga., Jan. 24.

[This particular hive seems to violate all the principles laid down in hive-construction in modern bee culture. It appears to be a cross between the Long-idea hive and the regular ten-frame Langstroth. Notwithstanding its peculiarities, Mr. Swinson, I know, produces a great deal of honey, for he orders a lot of stuff to put that honey in, and we must, therefore, judge the hive, not by its looks, but by what it does. Taking it all in all, I doubt whether the average bee-keeper in average localities would secure as good results in such a hive as those obtainable from the ordinary standard hive on the market.]

It has been laid down as a general principle that the surplus part of a hive should not *extend over and beyond* the brood below. In other words, the top of the hive or the super should be no wider and no longer than the brood-nest.

Our chaff hives of years ago made use of an overhanging super; and I used to notice that the wide frames containing the sections in that part of the super not directly over the brood-frames below would not begin to be as well filled as those directly over the brood-nest; and in northern localities, at least, subject to cool nights, I should expect that very little surplus would be stored in the overhanging parts of the super.

Another principle that has been laid down is that it is a mistake to give the bees too much surplus room *at the start*. For that reason, all section devices were, about ten or fifteen years ago, cut down to single tier. One tier of sections is put on; and, when the bees get well at work in it, it is lifted up and another super put under it. Mr. Doolittle has for years been strenuously advocating the giving of but little surplus room at a time. He even goes so far as to put on only two or three wide frames (single tier) at a time, in case of the weaker colonies, and then adds wide frame by wide frame as the honey-flow advances.

While I believe and know that Mr. Swinson's hive answers his purpose admirably, yet I doubt whether it would do in the average locality in the North.—Ed.]

TONGUE-LENGTH AND TONGUE-REACH.

An Explanation.

BY PROF. C. P. GILLETTE.

How easy it is to be misunderstood! In my paper upon "Long-tongued Honey-bees," I seem to have been misunderstood in two important particulars. The first is in regard to the relation existing between tongue-length and tongue-reach. In the current volume of GLEANINGS, page 8, the editor, in commenting upon my measurements of bees' tongues, says, "It seems there is no fixed relation between total length of tongue and tongue-reach." Dr. Miller, in the number for Feb. 15, page 145, says, "One thing that seems to be settled is that tongue-reach is not determined by tongue-length," and refers to my measurements to prove the statement. Similar comments have been made in print by others.

I tried to explain in my paper that I had found it unsatisfactory to depend upon tongue-reach directly measured, as I believed the measurements could not be depended upon as being very accurate. I stated that, "If the tongue-reach seemed too short when first measured, I could usually increase it by two or three hundredths of an inch by a little careful stretching." This is not a real stretching, but a straightening of the joints of the organ which tend to close upon one another like the closing of a pocket-knife. I also said, "I have considered the entire tongue-length the best measurement upon which to base conclusions as to tongue-reach." Also, "I believe, for practical purposes, it may always be considered true that the bee with the longest tongue has the longest possible tongue-reach."

I place no value whatever upon my measurements of tongue-reach except to show how variable and unreliable such measurements are. If any one thinks a bee with a shorter tongue can outreach another bee with a longer tongue, the burden of proof lies with him to show that such is the case, for it seems very unreasonable that it could be true. Is there any real evidence whatever that such is the case?

The other point I wished to mention is that some writers in bee-journals seem to think that I expressed the opinion that bees do not gather honey from red clover. I simply asked a very timid question. These are the words: "It makes me wonder if it is possible that those who think bees have gathered honey from red clover can be mistaken," and then followed the remark, "This is only a suggestion."

In this connection I might correct a wrong impression that the editor of GLEANINGS has in regard to the variation in length of tongue of bumble-bees corresponding to the age of the bees. In his comments upon my paper on page 17 of the present volume, the editor says, "Apparently the tongue-length of bumble-bees varies considerably. This might be accounted for by the difference in

age of the bumble-bees measured. It will be remembered that the bees of *Apis mellifica*, when a week old, are as large as they ever will be, while those of *Bombus* vary in size considerably, according to age." The bumble-bee does not grow after leaving the cell any more than a honey-bee. The small bumble-bees in a nest are the workers; the very large ones in the same nest are queens, and the queens have longer tongues than the workers. This is not surprising, as the queens are also workers, and have to do all the work of the nest or colony in the spring until workers are reared to help her, then she stays in the nest, for the most part, and the little workers go out to collect nectar and pollen. There are many species of bumble-bees also in the same locality, and these vary much in size and coloration.

The State Agricultural College,

Fort Collins, Colorado, March 7.

[What Prof. Gillette says is a good deal true; but in measuring tongue-reach there is one of our workmen who would get the same results as myself, and we both measured according to the same plan. But I can readily see that two different people attempting to follow the same directions *might* measure the same tongue and get different results so far as tongue-reach is concerned. In my own experience a certain kind of combing of the tongue will bring it just so far and no further; and my own measurements showed there was quite a variation in tongue-reach.

With regard to the honey in red clover, my only purpose in referring to it was that some who read what you said, even though it was merely a suggestion, might get the impression that there was *no* honey in red clover. I merely desired to state that it was definitely proven that red clover did contain, some seasons, large quantities of honey.—ED.]

SELLING HONEY.

Plain, Practical Advice from a Practical Man.

BY ADRIAN GETAZ.

So much has been written on this subject it is almost needless to go over the ground again. In this paper I will mention only a few points which have not received sufficient attention.

Honey can be sold to four different classes of buyers: 1. The wholesale merchants; 2. The commission merchants; 3. The retailers or grocers; 4. The consumers.

Selling to the consumers is generally called "peddling." Between the two first classes of buyers there is little choice. I would say that the ability and integrity of the parties should be the principal consideration.

If there is doubt as to the honesty of the buyer, the commission merchant would be the safer. The dishonest dealer who buys outright may get your honey and never pay.

All the recourse you have in such cases is to sue, get a judgment, pay the costs, and—*get your money if you can.*

The commission merchant has to make some kind of returns that the courts will accept, otherwise he may be criminally indicted for breach of trust, and perhaps be sent to the penitentiary. Very few among the more or less dishonest men will risk going to the "pen."

Selling to the grocers is, I think, the most advisable course after all, at least in the majority of cases. It will take some time and some trouble at the beginning; but after a sufficient number of good customers is secured it will not take any more work to ship to them than to the wholesale dealers. Better not sell too much on credit to any one man until you know positively he is all right. Cash sales can not always be secured. The grocer may not have the cash at hand. In fact, the grocers have to sell almost altogether on credit, and often wait quite a while for their money. The result is that they are frequently "hard up" for cash.

Often a grocer will not or can not buy; but very often, in such cases, he will take honey on commission, to be paid for when sold. The commission varies from two to three cents per pound. If his customers like the honey, and he finds profit in selling it, it is easy to make a better arrangement a little later.

The question may now be asked, whether it is best to sell near home or in the large cities. Many writers have insisted that the home market should be developed. That is all right where it can be done. The trouble is that, in villages and small cities, the specialist has to meet the competition of farmers and other slipshod bee-keepers who sell their honey for whatever they can get. A great many writers have abused the grocers for buying such honey, and at such prices, and refusing to pay more for the specialist's honey. But the grocers can't help it. They can not pay you 18 cents for your honey and resell it at 20 when their customers know well that they can themselves buy directly from the farmers at 15 or perhaps 12 cents. In large cities the farmer is out of it for lack of tidiness in his arrangements.

The honey in a wholesale or commission house has to be sold altogether on its appearance; hence the necessity of having crates, cases, sections, grading, etc., all in tiptop order. In selling directly to the grocers the honey can be tasted, and sold on its quality; and after the grocer and his customers know your honey to be good they will not mind if it is a little off color, or if the sections are not very carefully scraped.

In selling near home the freight is saved, also the cost of cases, crates, packing, etc., or at least a part of it. When sent a short distance the honey can be put into any kind of boxes; or if cases are used, they may be returned. That means a saving of something like 1½ or 2 cents a pound.

If the crop is not large, and the apiarist has nothing better to do, he can peddle the honey, and put into his own pocket the two or three cents per pound profit that the grocer would have made. I say, *if* he has nothing better to do. Generally speaking, peddling is slow work. One chief reason is that the majority of people keep but little money at home. They buy at the groceries, dry-goods stores, etc., all they need on credit, and pay at the end of the month or any other convenient time. The result is, they can not buy much for cash. Selling such small quantities on credit is out of the question, except with a few well-known customers. The boarding-houses, hotels, etc., will buy large quantities, but they do not want to pay retail prices.

But sometimes, in good seasons, the grocers are so well supplied that they can not buy, and peddling may have to be resorted to. There is an advantage in peddling extracted honey. It can be tasted, and, if found good, many people will buy at a price not very much below that of comb honey, and a larger profit made than could be on comb honey.

As to producing first-class honey and retailing it to private customers above the market price, I may say that I have not succeeded very well. Very few people will pay above the market price, and I have found the sales too slow to be profitable, and finally abandoned the scheme.

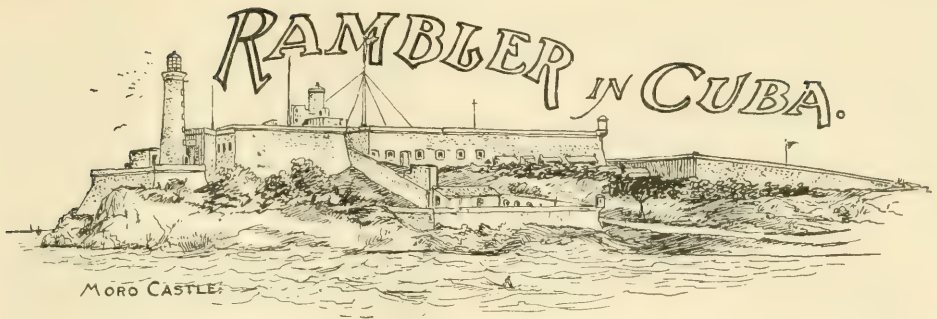
Here comes the question of buying honey and selling it to consumers. That is peddling within the legal meaning of that word, if the honey is carried from house to house, and sold there and then to whoever chooses to buy it.

Peddling in Tennessee is subject to a prohibitive license of several hundred dollars, and equally heavy fines and imprisonment are provided against the transgressors of the law. However, the courts of the United States have decided that a merchant has a right to solicit orders, either directly or by employing agents or commercial travelers, and also to deliver the goods sold, either himself or his employees. The result is, that a man can procure a merchant license (it is only \$3.00 per year here), go around and take orders, and return later to deliver the goods ordered. A farmer or tiller of the ground (and that term includes bee-keepers, poultry-raisers, etc.) can sell what he raises to whoever he pleases, without license, even grape or blackberry wine.

Commercial travelers tell me that substantially the same laws exist in all the States of the Union. The above may explain why Messrs. Moore, Niver, and others always employ two men—one to take orders, and the other following to deliver the honey ordered.

Knoxville, Tenn.

[This is an excellent article, and as it covers the ground so thoroughly we expect to have it struck off in pamphlet form.—Ed.]



RAMBLE 198.

Morro Castle and the Wreck of the Maine; The Immense Honey Resources of Cuba; Cuban Extracted and Cuban Comb Honey, and Their Effect on the United States Markets.

BY RAMBLER.

Sometimes we stumble upon surprises, sometimes they are thrust upon us, and sometimes we bring them upon ourselves.

It was through a combination of all these methods that I found myself, on the early morning of Nov. 19, on the forward deck of the steamship Aransas with half a hundred deeply interested fellow-passengers, passing the historic Morro Castle and Cabanas fortress, and into Havana harbor, the capital city of the "Gem of the Antilles."

After feasting our eyes upon massive stone battlements and protruding cannon "to the right of us and to the left of us," our attention was directed further up the harbor to the wreck of the Maine. As our steamer slowly passed and anchored near it there was scarcely a word from the crowd of passengers. All, like the Rambler, had their eyes riveted upon the bent and misshapen ironwork of the cruel wreck, and were thinking of over two hundred American sailors who were there dropped suddenly into eternity.

But, the anchor down, then came the hustle to get ashore. We were transferred to a small harbor boat, and were duly strained through the custom-house with our various belongings. As we had no contraband goods aboard we were not unduly detained.

To a person who has been living in one of the newest and up-to-date cities of the far West, with broad streets and ample sidewalks, neat cottages and ground around them, laid out in artistic design, it is indeed a strange experience to drop into a city like Havana, with its narrow stone-paved streets, stone buildings, marble floors, tile roofs, and windows protected with iron rods and wooden shutters instead of glass. While crossing streets it was not long until I was measuring their width by pacing. In the business portion of the city the width does not vary much from seven paces, and this includes the sidewalks. Many of the latter are only one foot wide. The trucking on these streets is nearly all done on

immense two-wheeled carts drawn by mules. There is just about room enough for two to pass; and as a big wheel chucks toward you on that narrow sidewalk you feel as though you ought to get out of the way; but you are safe, as that stone curbing checks the wheel when the big hub is within an inch of your clothing.

Just as I began to feel the need of a little more breathing-space I emerged upon a wide avenue in the center of the city, known as the Prado, with parks and seats for thousands of people. After finding a lodging-house and breakfast, the next consideration was The A. I. Root Co.'s headquarters. I entertained the idea that a center for supplies would be a center where beekeepers most do congregate, and found said center upon Obrapia Street; and with the genial manager, Mr. F. H. DeBeche, I felt very much at home, and fully so when surrounded by all of the modern appurtenances of bee-keeping.

In studying up the honey resources of a country it is well to consider the amount and variety of supplies sold and the honey shipped. When in Oregon and Washington a few years ago I found that, though a few carloads of supplies were sold from the Root headquarters in Portland, there were quantities of honey being shipped in from Utah and California. From this it was self-evident that those northwestern States were not great in honey-production. From the amount of supplies on hand on Obrapia St., Havana, I considered the honey business in a healthful condition. A few days later I called at 14 Obrapia St., and found the place vacant. Mr. DeBeche, finding his rooms too confined, had moved about a block away to No. 17 San Ignacio St., where a large building had been rented, and well filled with a new and large invoice of supplies. I then knew that the honey business was no small matter in Cuba.

During the past year California, at a conservative estimate, produced 5,000,000

lbs. As nearly as I can learn as to the Cuban crop for the past year, it has been equal to if not more than the California yield.

I doubt if California ever produced 10,000,000 lbs.; but I am credibly informed that, before the war, when there were more apiaries than at present, the product was over that amount in Cuba.

A marked difference in the yields of California and Cuba is that the former often has failures, but the latter none. The smaller area, then, of Cuba can be put into the front ranks as a producer.

At present virtually all of the honey produced is liquid, and probably $\frac{3}{4}$ of it is handled by one firm in Havana—Bridat-Montros Co. Price prevailing at present is 34 to 37 cents per gallon. This honey nearly all goes to Europe.

Our friends in the States, I fear, are casting envious eyes toward Cuba, and think-

So far as my observation goes, honey is extracted too green; the combs are but slightly capped. Extracted in the coolest portion of the year, there is but slight evaporation in the tank, and none where it is put immediately into tierces. The same honey, under a California sun, might become equal in flavor to the best in the land. I am confident, however, that there will be a great change in the near future in the production of honey in this island. Comb honey will come to the front, and I am sure the States can absorb large amounts of it at fair prices. Cuban comb honey is thoroughly ripened, and fit for table use. I would, therefore, caution the friends in the States not to hold this Cuban honey trade before their eyes as an immense lion. Lions are mostly terrible in anticipation; and, getting down to the birth of such lions, are they not born of selfishness?

Havana being the chief seaport of the is-



THE CRAYCRAFT AND DE BECHE APIARY; PUENTES GRANDES.

ing that a change to low tariff or free trade will allow a flood of honey to flow into their markets. Certainly honey is cheap enough now in the States, and it might temporarily affect the market should the several million pounds produced in Cuba be added to a large crop in the States; but the latter do not get large crops every year. Then here is this foreign safety-valve against ruinously low prices.

I believe that, with the 20 cts. per gallon duty off, there would be but little change in the marketing and prices of Cuban extracted honey. It is used in foreign countries for manufacturing purposes, and, although my Cuban friends protest when I say so, I must say that Cuban extracted honey will not find favor in the States as a table honey beside California or New York honey.

land, and the chief landing-place for Americans, there are quite a number of bee-keepers in and near the city, and several United States employees and professional men are interested in bees.

The readers of GLEANINGS are familiar with the name of Fred Craycraft. He is a bee-keeper of many years' experience in Cuba; and, though at present holding a good position in the custom-house, he is still interested in the busy bee.

Mr. DeBeche, manager of the A. I. Root supply-house, and Mr. Craycraft are jointly interested in two large apiaries—one at Puentes Grandes, near Havana, and the other at San Jose, 25 miles out. These apiaries are directly cared for by native Cubans, while the owners go out holidays and Sundays to see that things are moving; and I judge they are not afraid, when occasion

requires, to take hold and help *make* things move.

In one of their apiaries they are producing some beautiful comb honey; and if this is marketed successfully their apiaries will probably be devoted largely, in the future, to that grade of honey.



TIERCES OF HONEY ON HAVANA WHARF, READY FOR SHIPMENT.

I herewith present a view of the Puentes Grandes apiary and the surroundings. We get a glimpse of a little river below, and a portion of a tile-covered stone building of uncertain age.

Here is also a view of The Root Co.'s supply-house, not so much to show the Root sign as to show the street with its narrow sidewalk and the style of house with its prison-like windows. In fact, there are but few glass windows in all Havana. The upper portion of these stone houses is very pleasant and roomy, with lofty ceilings and marble floors. There was one mistake made in this photo. Mr. DeBeche first and Mr. Craycraft second are on the far end of



SUPPLY-HOUSE OF THE A. I. ROOT COMPANY, HAVANA.

the balcony, when they should have been upon the near end. It is all owing to the fact that Mr. Craycraft is a very modest and retiring man. There were some ladies coming down the street, and he was afraid he might be captured.

The gentlemen are both bachelors, and have their den off the said balcony. Lady bee-keepers should remember the number—17 San Ignacio St.

EXPORTATION OF HONEY AND WAX FROM CUBAN PORTS DURING 1901.

COUNTRIES.	HONEY.		WAX.	
	Pounds.	Value.	Pounds.	Value.
United States.....	1,317,222	\$ 50,956	176,384	\$ 40,446
Spain	15,040	500	882	150
France	1,009,755	42,559	204,352	58,350
Germany.....	1,500,790	58,263	619,240	166,214
United Kingdom....	246,847	8,894	7,761	1,215
Amer. Countries....			600	200
Europ'n Countries...	695,871	27,648	13,378	3,913
Other Countries....	10,075	529		
Total	4,795,600	\$ 189,349	1,022,897	\$ 270,488

In several respects the above statistics are deceptive. While the aggregate amounts are correct, the amounts credited to different countries are wrong in this respect: The greater portion of the 1,317,222 lbs. shipped to the United States was first shipped to the port of New York, and from there re-shipped to Germany. It is the same, only in a little less degree, with the honey shipped to France. Germany at last gets the bulk of it.

TELEGONY.

The Influence of the Male on Succeeding Offspring Not Sired by Him ; is the Theory Proven ?

BY PROF. A. J. COOK.

I am always much interested in reading GLEANINGS. I was especially attracted to the communication from W. E. Head, on p. 60, and also in your comments. You agree with Mr. Head in the statement that telegony is thoroughly established as a correct theory. I am exceedingly skeptical regarding the cases given by Mr. Head. I feel quite certain that reversion, not telegony, must explain them. If telegony be true at all, I believe it speaks with muffled voice and never in loud accents. May I present the matter to your readers, as it is very important in practical affairs? The belief in it once reduced the value of a cow in my herd many dollars. I believe there were no just grounds for this loss.

The theory of telegony is very important to breeders. The name originated quite recently with Weismann. Telegony teaches that a taint is given a female by mating with a male of different breed or race. To illustrate, a mare bears a foal from a jack. If the theory of telegony be true, any subsequent foal from that mare, even though sired by a horse, will very likely show mule characteristics. Again, a shorthorn cow is crossed with a Jersey bull. All future off-

spring, even from pure shorthorn, are likely to show the Jersey taint.

That there was some such theory in the minds of people as early as Jacob's time is possibly true. The theory has been regarded by many of our scientists as a correct one, back even to 1820, when Lord Morton wrote to Dr. W. H. Woolston, President of the Royal Society of Great Britain, the results of his famous experiments. These experiments were substantially as follows:

A nearly pure Arabian mare was coupled with a quagga. The resulting offspring was a female hybrid quite intermediate in character between the sire and the dam. The mare was afterward bred to a pure Arabian horse. The resulting filly, in the words of Lord Morton, and also a colt a year younger, were fine specimens of the Arabian breed, as fine as could be expected when only fifteen-sixteenths Arabian; but in the color and the hair of their manes they bore striking resemblance to the quagga. The stripes seemed quite conclusive, but the evidence from the main and tail was less so. This testimony from Lord Morton has been regarded as conclusive by many scientific men. Darwin, in referring to this case, says, "There can be no doubt that the quagga affected the character of the offspring subsequently got by the Arabian horse." It is significant, however, that Darwin wrote afterward that telegony occurred rarely; for he stated, some years before his death, that it was "a very occasional phenomenon." Agassiz believed in telegony. He was fully persuaded, to use his own words, "that the act of fecundation is not an act which is limited in its effects, but that it is an act that affects the whole system, the sexual system especially, and in the sexual system the ovary to be impregnated hereafter is so modified by the first act that later impregnations do not efface the first impressions." Romanes also believed that telegony was of occasional occurrence. His researches were quite extensive. He sums up his conclusions in the following words: "The phenomenon is of much less frequent occurrence than is generally supposed. I doubt if it occurs in more than one or two cases in a hundred." Herber Spencer believed in telegony. He not only has a theory to explain it, but also makes it the basis of an extended argument which he used in his controversy with Weismann. The latter, who gave us the term "telegony," writes as follows in the *Contemporary Review*:

"I must say that, to this day, and in spite of the additional cases brought forward by Spencer and Romanes, I do not consider that telegony has been proved. I should accept a case like that of Lord Morton's mare as satisfactory evidence if it were quite certainly beyond a doubt. But this is by no means the case, as Settegast has abundantly proved."

Settegast explained the case in question as an instance of "reversion." He says, "Cases are not rare where colts are born

with stripes which recall the marking of a quagga or zebra." Many German breeders hold with Weismann that telegony is yet unproved.

The late Sir Everett Millais, an eminent breeder of dogs in England, was also a doubter. He says:

"I may further adduce the fact that, in a breeding experience of nearly thirty years' standing, during which I made all sorts of experiments with pure-blood dams and wild-blood sires, and returned them afterward to pure sires of their own breed, I have never seen a case of telegony, nor has my breeding stock suffered. I may further adduce the fact that I have made over fifty experiments for Prof. Romanes, to induce a case of telegony in a variety of animals—dogs, ducks, hens, pigeons, etc., but I have hopelessly failed, as has every experimenter who has tried to produce the phenomenon."

Very recently Prof. Ewart used Matopo, a beautiful zebra stallion. He has secured eleven zebra hybrids, from mares of various breeds and sizes. Some of these hybrids were even more marked with stripes than the sire. The mares were afterward bred to horses. The progeny were for the most part very much like ordinary foals. There were, however, stripes, which in some cases were quite evident in certain lights, but even these in many cases disappeared later. It is interesting to note, however, that these faint stripes were unlike those of the sire or even the hybrids. Foals of ordinary breeding very often show similar stripes. Many of the colts show no stripes at all, nor any indication of taint. Prof. Ewart has also experimented with pigeons, fowls, ducks, and dogs. There were many cases of rabbits, and in every case the mother which had been impurely mated subsequently bred true upon being purely mated. Prof. Ewart does not claim to have proved any thing. He is certain that it does not always occur, and believes with German breeders that, if it occurs at all, it is seldom. We quote from him: "The experiments, as far as they have gone, afford no evidence in support of the telegony hypothesis." He believes that the stripes are easily explained by atavism or reversion. Certainly we owe a great debt of gratitude to this Edinburgh professor. Very recently Prof. Ewart gave the results of further experiments to the same purpose.

The late Dr. Manly Miles, in his "Principles of Stock-breeding," accepts telegony. He gives a case in his own breeding. An Essex sow was bred to a Chester White boar. She was afterward mated purely, and produced a litter of pigs which were as much mixed black and white as the previous litter. I was at the time a colleague of Dr. Miles, and with many others had grave doubts regarding the experiment. A careless work-hand, the accidental opening of a gate, so many things would explain the result without an appeal to telegony. The taint was so great that it could not but

make one skeptical. I can not but feel the same way regarding Mr. Head's report in GLEANINGS.

As is well known, many poultry-men and apiarists argue that the law of telephony is as true of birds and bees as of mammals. I have long doubted its truth with poultry, or our pets of the hive. Telephony was at first explained as blood taint in the case of mammals; but there is no intermixture of the blood of the mother and the embryo. An extensive membrane in the placenta separates entirely the blood of mother and fœtus. Blood taint is obviously impossible. The nerves were next appealed to to explain this phenomenon. This, however, is vain, as the nerves of mother and offspring are entirely separate. Dr. Miles called in cell inoculation to explain telephony. We all know how inflammation spreads in the case of wounds. The explanation is evident. Poison, or possibly microbes, pass from the injured to the uninjured cells, and, with the spread of the cause of the disease, the disease spreads. In telephony there is no virus, and so there could be no inoculation. Herbert Spencer suggests that "germ-plasm" passes from the fœtus to the mother and becomes a part of her body, and spreads to affect all the tissues, even the reproductive organs. This is surely very hypothetical.

I was led to question the truth of telephony, as the testimony seemed as conclusive with birds and bees as with mammals. Mr. Spencer's germ-plasm could not affect in these latter cases. With fowls, only the sperm-cells are lodged, and that for a brief space, in the oviduct of the hen. There is no organic connection, and it is hard to see how any influence could taint the hen. I know it is claimed with some show of authority that impure mating changes the color of the eggshell. I can only say, very interesting if true. If such a change occurs, I believe reversion explains it. In the case of bees the connection is a little more obvious. Here millions of sperm-cells are lodged for years in the spermatheca, or sperm-sac, of the queen. There is, however, no difference in kind from the fowls—the only difference is in time. The sperm-cells are present in the reproductive apparatus for years instead of days.

So grave were my doubts that I experimented at length to see if I might decide the matter. My experiments with poultry were made with Light Brahmas and Brown Leghorns. These birds are different in limb, feather, form, habit, and color of egg. The fowls all ran together through the winter, mating promiscuously. In early spring I separated the birds, putting all the Leghorns, male and female, in one pen and the Brahmas in another. After three weeks I commenced to incubate the eggs, and raised over 200 chickens. There was not the least show of taint in either breed. We all know how persistent the feathers on the legs are with any show of Brahma blood. My Leghorns had legs that were

entirely clean. At the close of these experiments I was more skeptical than ever as to the truth of telephony in birds. Noted breeders of long experience in our country make similar reports.

I next experimented with bees. I procured a queen all the way from Syria. I introduced her in my apiary where there were only Italians. I at once reared several queens from her which must have been mated exclusively with Italian drones, as there were no Syrian drones within hundreds of miles. As is well known, drones hatch from unimpregnated eggs. Here, then, if the drones from these queens should show any Italian taint, we should have positive proof of telephony in bees. The eggs, not being impregnated, can produce only drones that have the characteristics of the mother. If impure, then surely the mother must be affected. In this case we have examples, not by the tens nor the hundreds, but by the thousands. I examined these drones very carefully, as did my students and many others. Every drone was decidedly Syrian, and had not the slightest mark of an Italian. Have we not, then, good reason to doubt the truth of telephony in bees?

I have known several cases among mammals where telephony might be put in evidence if true; yet in every case the evidence was absent. I know this is only negative testimony. I went to the Chicago exhibition during the time that mules were being exhibited. I talked with many extensive breeders, and not one believed in telephony. They all said that they had had no evidence of its truth.

As stated at the beginning of this article, this is a matter of no little importance to the breeder. If telephony be true, then accidental cross-mating with any female for ever taints her blood. I am so firm in the belief that it is not true that I would not pay one nickel less for a shorthorn or Jersey because, at some time in the past, she had been impurely mated.

Claremont, Cal., Feb., 1902.

EXPLOSIVE COMPARISONS.

Breeding from Freaks; Dr. Miller and Mr. Doolittle Put on the Witness Stand; Difficulties in Improving Stock.

BY ARTHUR C. MILLER.

[The following article was written for our Jan. 1st issue, but owing to the large amount of matter on hand we were not able to get to it till now.—ED.]

Just what the editor was trying to do when he compiled the copy for the issue of Dec. 15 is a conundrum. He at least succeeded in gathering together a most excellent lot of explosives if properly combined. Let me see if I can make the combination. P. 972 Dr. Miller says: "F. B. Simpson, in the *Review*, stands sponsor himself for the idea that freak-best queens should not be selected to breed from, and tells me to come on with my brickbats. Well, here comes one,

F. B. G. M. Doolittle says that for thirty years he has followed the plan of breeding from the best (and, if I understand him correctly, the more of a freak a queen was by way of securing exceptional yields, the better she suited him as a breeder), and as a result he has not only brought up his average, but has secured a much greater uniformity in the yields of different colonies."

Dr. Miller's witness, Mr. Doolittle, has for years told of the great labor and pains he is at to get all his colonies of a uniform strength in the spring; told of its importance in getting *more uniform* results in honey crop. Also on page 975, Dec. 15, he says he has been keeping bees for 33 years, and again refers to his effort at stimulating this year (1901), keeping the feeding up until the 15th of June. On p. 976 he tells of his average yield from colonies not drawn on for queen-rearing was 175 to 180 lbs. He omits giving the number of colonies. Next he mentions four colonies, the tongues of the bees of which measured from 25.4 hundredths to 25.8 hundredths of an inch, the difference, 4 one-thousandths, being infinitesimal. Incidentally he says the honey-flow was the greatest in his experience. Now, from these four colonies the yield was 317 lbs., 54 lbs., 105 lbs., and 93 lbs. And this is *uniformity*! The tongue length was uniform enough; and unless Mr. Doolittle's skill has failed him the colonies started of uniform strength. Dr. Miller was unfortunate in his selection of a witness. On the strength of the evidence Mr. Simpson wins.

But here are some further combinations. Mr. Doolittle says his care in selecting his breeding stock (extreme freaks) has raised his average honey-yield, and made the returns per colony "*more uniform*." Great Scott! what were the previous *extremes*? This selecting has been done inside of 33 years; he has been able to select only the females, the males being practically beyond control. By his own statements the bulk of his queen-rearing is done during the height of the honey season—a time when drones are abundant in all colonies, particularly in his neighbors' yards and in *wild* stocks.

To digress a little: Taking any species of animal from its wild state, changing its environment, food, etc., selecting both the males and females, and it is, even under such favorable conditions, years before any perceptible variation is secured. To digress further: Certain species of birds that were known to exist under the same conditions in the same locality for over 3000 years, and free to mate as they choose, have not varied so far as can be perceived.

To return to the bees: Our bees to-day are living under practically the same conditions that they have lived under since man has known of them—over 2000 years of written records. We have not been able to change their habits, and we are able to select only the females. To claim that radical changes in structure and habit in a desired direction could under these conditions be secured in 33 years is, scientifically, an

absurdity. In a neatly satirical article in GLEANINGS for Dec. 15, p. 973, Mr. S. E. Miller has shown the folly of making any such claim or of deceiving oneself by any such delusion.

Mr. Doolittle has recently called particular attention to his 33 years of experience, and to what he honestly believes he has learned and accomplished in that time. He alludes to this long experience in the opening paragraph of his article, p. 975. On p. 983 the editor tells of a young and not robust lad who, from a start of 7 colonies, has increased to over 500 colonies in *five years*. Mr. Editor, you should be careful how you put the ingredients for such explosive comparisons in the same issue.

I do not make these comparisons for the purpose of ridiculing any one. Mr. Doolittle is a facile writer, and is popular with many readers; but I think he has shown that, in spite of his years of bee-keeping, he is not successful in making correct deductions from the facts before him. It is not his fault, but, rather, his misfortune.

Dr. Miller is an entertaining writer, a successful bee-keeper, and probably has more friends among the bee-keepers than any other living man; but if we may judge from his own communications he is not "up" on the latest accepted beliefs on breeding, on development, and on heredity. With his many duties and his advancing years it is not to be expected that he could be. But he and Mr. Doolittle are far from being alone in misinterpreting the results obtained under different methods and varying conditions. We have before us a very complex problem. We desire to increase our honey-yields, and practically all progressive bee-keepers (including Dr. Miller and Mr. Doolittle) are, I think, agreed that, to accomplish that result, we must have improved strains of bees. To obtain such we must breed from stock *selected* because of its excellence in the desired direction. But how shall the selection be made? Evidently, tongue length isn't all, nor is uniformity of strength in colonies a safe basis for comparison, nor is extent of honey-flow an aid. Evidently, the first thing we have got to do is to teach ourselves *how* and *what* to observe. We have got to study the same individual colonies for at least two whole successive years—one won't do. By experience and the careful comparison of the results of many observers we must learn what factors have weight and what may be ignored. We are dealing with conditions which call for keen eyes, and minds able to discern all possible factors. The results must be clearly and concisely stated. Generalities will not do; broad assertions will not do, and offhand assumptions will not do. And while we are learning to observe we may busy ourselves still further in trying to discover a satisfactory method of controlling mating. This we have got to have; for, to expect to advance in a specific direction by the selection of the females, without ability to control the males, is like

Mrs. Partington trying to mop up the Atlantic. To be sure, under exceptional conditions (as on a small island) we may be able to make some progress; for under such conditions we should be practically controlling the males. But what would the product of many such islands amount to when distributed through the apiaries of our land? The Atlantic, as before, would beat Mrs. Partington. We have this much in our favor (and it is a good deal): Our bees have begun to vary *perceptibly*. This, I think, is chiefly due to our introducing to our temperate clime bees of the tropics, and the crossing of them with the native stock. (Scientifically speaking, variation is continuous, though by no means always definable). If we acquire the ability to select intelligently, and at the same time have an effective way of controlling mating, we may reasonably hope to reap some of the benefits of our improved strain of bees within the lifetime of many of us, and not leave it all for coming generations.

From information in my hands I believe the day of controlled mating is not far distant, though I am not yet at liberty to disclose the facts or source of the information on which I base this belief.

Providence, R. I., Dec. 21.

HAY VS. HONEY.

Alfalfa Cut Before Blooming; no Honey.

BY J. A. GREEN.

A note of warning was sounded in the Dec. 1st number of GLEANINGS in regard to the probable decrease in the yield of honey from alfalfa, that may be pondered over very profitably by those who depend on this source, or who are thinking of locating in alfalfa regions with the idea of securing a more certain source of honey. I have lately returned from a trip through the West, during which I paid particular attention to the alfalfa question. When I learned, in Southern California, that there were districts where alfalfa was the main crop, I thought that I had found the ideal country for a bee-keeper, and I hastened to investigate. I had not felt particularly attracted toward bee-keeping as generally practiced in California, where the apiarist lives a secluded life up some almost inaccessible canyon, and depends for his bread and butter and honey upon a rainfall that is far more capricious than that in the Eastern States. But this country is comparatively thickly settled, and with a honey source that was almost certain; and since it depended on irrigation rather than the chance of the seasons, it seemed to offer special advantages to the apiarist. I accordingly procured a bicycle and started on an exploring-tour. I found the alfalfa country all right, and learned at first hand some of the possibilities of this wonderful plant in that land of sunshine. In this district most of the water is pumped from wells.

Many of the pumps are operated by electricity derived from an electric wire run through the valley for this express purpose, while others are run by gasoline-engines or other sources of power. Alfalfa-raising was evidently a profitable business. But I saw no bees. "All the better," I thought. "This is unoccupied territory. The alfalfa business is new here, and the bee-keepers have not got in here yet." But I made inquiries.

"Are there no bees here?"

"Lots of them up in the foot-hills and canyons. No bees around here."

"But I should think that, with so much alfalfa around here, there would be lots of bees."

"Never heard of its being any good for bees. Don't think they get any honey from it."

Mystified, I went to the bee-keepers.

"No, alfalfa doesn't yield honey in this country. It is no good at all for bees here."

A little investigation showed the reason. The alfalfa business was so profitable that it was run as a specialty. In that favored climate, with plenty of water, six or seven crops a year were cut. Better hay, and more of it, was secured by early cutting. Small farms were the rule. Good livings were being made from pieces of land that, to the hay-raiser of the Mississippi Valley, would seem ridiculously small. The result of all this was that, just as soon as the alfalfa was ready to cut, the mower was started. The proper time for this seemed to be, in their opinion, just as soon as the blossoms appeared, or a little sooner. With the small farms, divided into fields so managed as to come on in succession—an easy matter where the climate is always the same and water regulated at will—cutting did not last over a day or two. The honey-yield is nipped in the bud, as it were, and a colony of bees might starve in the midst of an alfalfa district, if it were not for the few stray plants along the irrigating-ditches, which escape cutting.

I afterward learned that there were other parts of California where alfalfa is the source of considerable honey. Here the farms are larger, and it is the custom to delay cutting longer. In Idaho and Colorado, where alfalfa is the main source of honey, it seems to be the custom not to begin cutting until the alfalfa is well in bloom; and as the fields are large, the bees have a number of days to gather honey. The tendency, though, is to cut earlier, and this tendency is likely to increase as the farmers find they can get more hay of a better quality by early cutting. Some with whom I talked thought that, with the large fields that were the rule in their locality, cutting would always last so long that there was little danger of the yield of honey being materially lessened. But, without question, alfalfa must in most places be less reliable as a source of honey in the future than it has been in the past.

Ottawa, Ill., Dec. 10.

COMMENTS ON RAMBLER'S TROUBLES.

Alfalfa, Why it Fails to Yield Honey at Times; Rambler's Wee-waw Hives; the Heddon Hive.

BY W. A. H. GILSTRAP.

Rambler's writings have a peculiar attraction to me. When he was writing of California honey conditions from the south end of the State it was trying on our nerves. We can write all we please about apicultural conditions to GLEANINGS, and still our Southern California friends seem to know but little about the greatest mountain-inclosed valley of the world. The way Rambler writes on page 977 shows that he has spent some time in our valley, and we will not quarrel with him for being in California so long before he learned of our section. As I slung honey fifteen or twenty miles west of Rambler's retreat for several years, and alfalfa honey in other localities as well, perhaps my experience and observation would help the traveling man the next time he comes our way.

To my mind, alfalfa is a desert plant. If it is excessively flooded it is thrown out of its normal condition, and makes poor success as a flower or honey producer, and almost completely fails for seed. These conditions are more pronounced on some soils than others, and it is evidently influenced by the atmosphere. The weather that is best for honey production in New York is not normal summer weather here, and will not give best results. Mr. Doolittle has said that the honey season is better with occasional thunder showers, I believe. It will not work here "a little bit." Alfalfa is said to be a poor honey-producer in the Northern States. That could be expected of a dry-weather plant. Perhaps sweet clover is a good honey-producer nearly anywhere.

But some seasons alfalfa presents an abundance of fragrant blossoms which look all right, and yet very little honey is produced. Why? The most striking case of the kind that I have observed was when an unusual amount of lightning was noticeable. This led me to believe that an excess of electricity in the atmosphere was detrimental to honey production. This view has been strengthened since, but still there is a question as to this theory being reliable. Who knows?

But the great enemy to alfalfa-honey production is the change in cutting the crop. I have not heard of a farmer who has tried making hay of very young alfalfa who has changed back to his former plan of allowing it to stand in bloom quite a while.

"The great problem in this valley is to learn how to hold the bees in when they want to increase, and make them increase when they don't want to" (page 978). As you, Mr. Rambler, are a Heddon-hive crank (me too), you would probably contract the brood-chamber to one case about the last week in August. In the spring

you would turn the queen loose with that rather light colony. As they would not get strong enough to swarm, with empty combs present, until the "starving time," they would still try to get extra strength, and perhaps would be your strongest colonies early in the honey-flow.

Now, Rambler, that brings us to wee-waw hives. The name "astral hives," from a prominent word on many of the hives, may go into oblivion, so far as I am concerned. You certainly never tried to move bees in such hives. As there is hardly anything to nail to you can not nail them tight. As they are sure to be warped and split, tying is a failure. Do the best you can, and then some bees will come out and push you off the wagon. But if you want to enjoy life, just ship some bees in wee-waw hives by rail. I tried it once.

But there is one redeeming feature about them. When a man gets 300 or 400 wee-waw hives he buys a ranch or improved town property, or loans money out at interest. Did you ever know it to fail? Perhaps these old rattle-trap hives will give better results in average hands than the best Dovetailed hives made, as you are sure of ventilation. Let me illustrate.

A friend of mine, a good bee-keeper too, ran short of good hives during swarming one spring, and then put the rest of his swarms in old discarded hives that were quite leaky. To his surprise the bees in the leaky hives stored more honey than those in the tight hives—more ventilation. In this locality we need good bees and good worker comb. The outside part of the hive is of less consequence. Of course, this is a matter of locality.

Grayson, Cal., Jan. 6.

[As I went through the alfalfa districts last summer I heard a great deal about getting the roots of the plants too wet or too dry. In some localities it seems to thrive more vigorously than in others. While the soil and climate may have some thing to do with the bloom, yet it was very evident that the method of handling and watering had also much to do with it.

But the matter that is of great concern to the bee-keeping interests is the increasing tendency on the part of farmers or ranchers to cut the hay before it comes into bloom. If this practice continues at the rate at which it has begun, it will be only a question of time when the great alfalfa-growing regions will become less and less known as honey localities; and the alfalfa honey which we prize so highly will have to come from those fields where the plant is cultivated for seed. Some regions are devoted entirely to seed-growing; and when a bee-keeper can get into one of these localities he has a bonanza—or, as some of them told me, a "snap." The general practice at the present time is to cut the alfalfa after it has been in bloom for a few days. If it were only to the interest of the hay-grower to let the plant continue on through the

blooming season, and *then* cut, twice as much honey might be secured, perhaps. But I fear the matter is working the other way. It is well, therefore, for those who think of going to the West, to consider most seriously whether the production of alfalfa honey will not be largely a thing of the past. If I am setting forth the situation worse than Mr. Green or Mr. Gilstrap have in their article (and I think I am not) I should be glad to be corrected.

The time may come, however, when bee-keepers can afford to pay the ranchmen something for letting their hay crop go into bloom before cutting. Whether that would be feasible or not remains to be seen.—ED.]

“DOOLITTLE'S FOUR COLONIES; A QUESTION ASKED.”

Why Some Colonies Gather More Honey than Others; Brood-rearing under Control.

BY G. M. DOOLITTLE.

Under the above heading, Mr. W. C. Eastwood, in the January 15th issue, has this to say: “Should not G. M. Doolittle, in that communication of his, ‘The season of 1901,’ page 976, when giving his account of the comparative test of those four lots of bees as to the length of their tongues, and honey product, have furnished us an explicit statement of the quantity of bees and brood in each hive at the start? He has left us to assume that all started even, but he does not say so. The omission is a serious one. It renders the account given valueless. . . . The comparison made is not between the total amounts gathered by the several colonies, but between the amount of their several surpluses over and above the quantity needed for the support of each colony—quite a different thing. . . . And the editor adds, Mr. Doolittle says the four were worked as nearly alike as possible. He might mean by this that they were nearly alike in brood and bees; but the statement, as you say, is not explicit.”

When we come to technicalities, both of the above are right; yet I expected it would be inferred, as was really the case, that the four colonies were as near alike as “two peas,” by the words “were worked as nearly alike as possible,” for, surely, no one would think of comparing colonies of unequal strength on the start. No, the trouble was not in the colonies being of unequal strength the first of May, but was in just the thing touched on by Mr. E. in his last sentence quoted. Quite likely all four of the colonies may have gathered somewhere near the same amount from the field, but of what use was that? It is only the *surplus* which counts to the one keeping bees for profit. I really thought, on June first, that the colony which gave the least surplus was the one which was going to do wonders for me. And why? Because it had the nicest lot of brood, and that in the most compact shape. And why did it not

do the best? Ah, there is the rub. And right here is the thing which most bee-keepers have failed to grasp in their breeding and selection: That supposedly better colony used nearly all of its energy *rearing brood* when the honey harvest arrived, which resulted in a host of restless bees, which began to swarm in the height of the honey harvest. And at brood-rearing they kept, and day after day they would swarm, in spite of all Doolittle could do, without upsetting the plan started with, and upon which the others were worked, until the whole season was frittered away (except 40 lbs. of poor surplus) in this brood, and the swarming of the bees, which became useless consumers later on, so that there was not honey enough for winter stores. Will Bro. Eastwood—yes, or any one else, tell me what use there is of bees, gathering from the fields, using the honey in such a way as that?

Now let us come to the other colony that gave the 261 lbs. of surplus, all nice for market. What of those? They put in good licks at brood-rearing, up to the time the honey-flow had been on for about a week, when the brood gradually lessened down to just enough to keep the colony in good condition for wintering, while every energy was bent in putting in all the nectar possible as a surplus, supposedly for themselves, but which I took advantage of at a rate of \$33.42, and after that they had double the amount they required for winter. “No use talking, brethren,” the queen that will put her bees on the stage of action, in a maximum number or amount, right at the beginning of the honey-flow, then decrease her brood so that this brood, and the bees from it, shall not consume a larger share of the nectar gathered, while the maximum amount of bees work energetically, with little or no swarming, for the accumulation of a surplus—such a queen is of more value than any other *one* thing in all the realm of bee-keeping, if not more than all of the other things combined. And this is the *one* thing I have been breeding for, and the result of the season of 1901 proved that I had not worked in vain. The queen colony which is susceptible to the manipulation of the apiarist along the line above spoken of is a *power* in the apiarist's hands to roll up untold amounts of honey. But the colony which is not susceptible to such manipulation will prove to be a disappointment the larger part of the time. And I wish to thank Mr. Eastwood for drawing this matter out. Here is something I have been trying to get the brethren to think *seriously* about for many years, but my words have seemed to them as “idle tales.” I have had queens from all over the United States, and even from Australia, which would do nothing but go to booming brood-rearing at just the time they should be bending every energy to the storing of nectar, if I was to reap any reward for my trouble in keeping them. That queen from Australia would put brood in only four combs prior to our

basswood-honey harvest, and I had a mind to kill her on account of her unprolificness, but did not, because I wanted to show people a queen raised in a country on the opposite end of the globe, and 10,000 miles away. Imagine my surprise, when the basswood harvest came on, when all of the queens from my stock were beginning to retrench brood-rearing, to see this queen go to brood-rearing as if it were the fore part of May, and thus continue till nearly every available cell in the brood-chamber was crammed with brood; and at the close of the honey harvest they began to swarm, and kept it up as long as there was a drop of honey to be had in the hive or elsewhere, fully a month after the last swarm from my own queens had issued. I kept putting in frames of honey to keep them from starving, and they kept swarming till they not only used up all the honey they had gathered, but fully 20 lbs. from other colonies, and I had to give them their stores from other colonies for wintering. I thought I would try them again the next year, was the reason I wintered them, but the next year they proved just as bad, and so I killed the queen and gave them one from my own stock. And this is the way, only to a lesser extent, that the Carniolan and Syrian queens have acted with me, as well as several queens of the Italian race which I have procured from other parties.

We have talked during the past about the prolificness of queens as being the great object which should be sought after; but I came to the conclusion long ago that prolificness in a queen, which could not be controlled, counted for naught—yea, worse than naught.

If this criticism of Bro. Eastwood, which called out this article, shall set us to thinking along the right line regarding the prolificness of our queens, he will have done the world a great favor, and I shall not have written this in vain.

Borodino, N. Y.

RAMBLER'S JOUNCER.

Extracting Combs without Taking them out of the Super.

BY J. HAMMOND.

Mr. Root:—In reading GLEANINGS for Jan. 1, I noticed Rambler was trying to kill off my new bee-brush with his jouncer. Of course, a fellow doesn't like to see one of his pets knocked out with such an ugly-looking "jouncimal" with forty legs, more or less; and, just see his position in the performance. Surely he must be out of joint entirely; and since when, and where, has he accumulated such enormous wealth that he offers to squander it by offering such large prizes for such simple little queries as how to extract one whole super without removing the frames? Now, I want that fifty dollars, so will you tell him to send it to me right away? I need money. I

have made only very little since my accident two years ago this spring. Here is the method he covets so much: First, provide a reversible extractor suitable to accommodate four supers at one time. Place the supers in and then uncup. He will have to use tin separators in place of fences to stop the honey from being thrown on to the next section, and work speed accordingly. If he can not see a way to uncup the four supers while setting in the extractor, tell him to jounce his head a very little, and then brush it well with one of my bee-brushes, and, perhaps, while doing so he will see so much wire it will inspire him with an idea.

But, by the way, I am giving him too much and too good measure for the price. I am giving four where one is the bargain. Well, tell Jouncer he can have the first one for the price offered, and I will throw in the other three for fifty dollars more; and if he offers enough of a prize I will give him a method on an entirely different principle that will almost jounce the wind out of him. I am not a good hand at keeping secrets, so I will give it to you to keep for me; and if Rambler will promise not to let his great big jumping, jarring, splashing, jouncing jouncimal molest my little pet any more, and you can jounce some of his spare wealth out of his pockets, we will let him peep in through the glass in the tank while the method is in operation. Here is the method: Provide a strong tank with a lid to open and shut with a rubber joint, to make it air-tight. Insert suitable valves where needed, also connect a powerful air-pump. Place inside, inverted, 100 supers, more or less, and just pump the honey out by suction through the cappings without removing; then if you can jounce 40 or 50 millions out of Rambler we will share the swag.

Buena Vista, O., Jan. 22.

[I hardly know whether to take you seriously or as joking when you speak about extracting the combs without taking them out of the super. However that may be, I once entertained the idea that it could be done very feasibly; but if you will stop and think a minute you will see at once why tin separators between the combs would not be practicable. The first difficulty is in the matter of uncapping the combs. The next is in getting the honey out. We will put our supers, having tin separators between each pair of combs, into a mammoth honey-extractor. We will turn the reel vigorously. The honey will now fly out, and strike the tins. Except for uncapping this is all very simple. After the honey is all out of one side of the combs in the supers we will turn the supers the other side to. Remember that one side of the tin separators will be covered over with honey perhaps an eighth of an inch thick that has not yet run down. We will turn the extractor and get it under good motion. Now, don't you see that the honey that clings to the surface of the tins will *fly back*

into the cells from which it came? Ay, there's the rub.

It is true that Coggs shall has tin separators between his pairs of combs; but his extractors, you will bear in mind, are not reversible, and the surface of the tins is not reversed.

I myself never saw the difficulty in the way until Mr. J. F. McIntyre, of California, pointed it out to me.—Ed.]



TWO VS. FOUR FRAME HONEY-EXTRACTORS ;
EXTRACTING IN A WHOLESALE WAY;
CRITICISMS.

We have noticed a great many remarks in regard to the relative merits of the different sizes of honey-extractors, and among them Rambler's suggestion in Ramble 193, that some one should make a test. This prompts us to report our experiences with them.

We have eight different apiaries, and keep an extractor at each place. This gives us a chance to test the machines under the same conditions, and with the same men, and here are the results:

The two-frame Cowan is all right for light work (what we mean by this is where you have time to use care in handling). It is the easiest to move and to run, and is suitable for up to 150 colonies of bees. It is not strong enough to stand forcing, such as is necessary where a gang of four men are working in the apiary, as in our case. We have never been able to force one for a day without having trouble in keeping set-screws tight; and, in fact, many little things go wrong. The most that we have extracted with this size in one day was 26 cases, July 25th.

The four-frame is our choice, every thing considered—the cost, room required to manipulate, and strength required to run it. Its capacity is about equal to the amount of heavy combs that an experienced uncapper can turn off, and it will keep two men busy bringing the honey in. We find that we can average about two tons a day with it under favorable conditions.

But when it comes to doing a really wholesale job, give us a six-frame. A good strong man can do just twice as much with it as he can with the two-frame, and do it with less hustling. It is easier on the combs, and does cleaner work than either of the others, and ordinarily the operator does not have to pay any attention to paring up the combs (that is, keeping the heavy combs opposite so that they will balance). It is a splendid machine, and will handle all the combs that you can bring to it, as two men can work to advantage on it in case of a rush.

Now for a little honest criticism. The manufacturer evidently does not realize to what an extent we have to crowd our extractors in the large apiaries of Southern California. While the extractors are undoubtedly very near perfection for a little gentler use, we find the monkey-wrench, a few rivets, and set-screws (to say nothing of brake-bands and a soldering-outfit) are necessary to keep even the newest, largest, and strongest in shape for good work. In the first place, the handle will not stay on the shaft. Why is only one set-screw used there, and two everywhere else? We have overcome that difficulty by the use of a key carefully fitted and driven home to stay. But even now the set-screws work loose every little while, allowing one gear or the other to slip, and even the basket to start out on an independent revolution. The brakes are a great help, but do not stand up to the work. Ours all gave out this season one or more times. The band breaks where the screw holds it on the lever. The continual bending is too much for it. These little things can easily be made secure without any perceptible cost to the maker, and we believe that it will help to make better bee-men, not to say Christians.

EMERSON BROS.

Santa Ana, Cal., Nov. 15.

[From my own personal experience (and you know I have helped to extract in California with two, four, and six frame machines), I believe you are pretty nearly right; and I know you are right in regard to the use of the set-screws. The Root Co. will undoubtedly make a change.—Ed.]

FULL FIVE-BANDED ITALIANS.

Mr. Root:—I was very much surprised at your remarks in Dec. 1st GLEANINGS in regard to golden Italian queens. I was also glad to note that a friend, Mr. H. H. Hyde, has replied to that statement, and at the same time I am sorry to note that you are still unconvinced that there are straight five-banded Italian queens, or, in other words, golden queens producing straight five-banded workers. I wish to add my word to that of Mr. Hyde, for I have not only seen a large number of such queens, but have owned them, and last season sent out about 25 straight golden queens—those whose bees showed five yellow bands. Neither myself nor Mr. Hyde now have queens for sale, and this is not said with the hope of any pecuniary reward.

I also notice that you made a short tour of Texas last summer, and have run these travels through GLEANINGS, and have now got to Arizona in your travels, and you have not said a word about the great Texas product, *bulk* comb honey. I should like to see it properly shown up in GLEANINGS, also to have your opinion on it after going through the very heart of the country where it is produced, and talking to some of its main producers. I hope you will again

some day make Texas a more extended visit, so you can satisfy yourself as to these statements above. WM. CRAVENS.

Floresville, Texas, Jan. 28.

[Do not misunderstand me as believing that there is no colony of bees *all* with five bands. As I said before, I say now, I never saw *all* the bees of any one queen that showed the five yellow bands. I have seen the progeny of some queens that showed four bands and five bands.—Ed.]



Prove all things; hold fast that which is good.—I. THESS. 5:21.

I have been greatly troubled of late years—in fact, dear friends, I have been troubled more or less during all this short life of mine—not only because truth and error lie scattered before us everywhere, but because of the difficulty of separating truth from falsehood. Even when I was a child I was in the habit of asking questions innumerable about these strange and wonderful things that are being constantly unfolded before every one who loves to study nature and humanity. I am told that, after my father and mother said things were thus and so, I would follow my question right up by saying, “How does anybody know this? How can they be sure they have not made a mistake?”

Now, do not imagine I have all my life been doubting *every* thing. When reasonable proof has been furnished, I believe I have been willing to accept facts. At the same time, I always had a fondness for testing and proving the thing myself. I once heard of a boy who, when he was told a pound of lead and a pound of feathers weigh exactly the same, could not be satisfied until he got his mother’s steelyards and proved the thing to his own satisfaction. When I was old enough to get acquainted with the doctors (and, by the way, that happened at a very early age in my case) I was very curious to know how *they* found out that certain medicines would cure certain diseases. After I had admitted that this might be true, I was still more perplexed when told that certain things could not be cured unless one took a certain combination of things—a little of this or of that; a pinch of something else, and so on until you had a bottleful of a great many things. Somebody would tell me they had discovered by careful experiment that all these things were good, and that by combining them they got a “powerful” panacea for certain troubles. Well, after I had reluctantly admitted this might be true, the question then arose, “How is it possible for anybody during his lifetime to find out that a little pinch of this, a tablespoonful of

that, a teacupful of the other, and so on through (just so much of each, and *no more*), is exactly *the* thing to cure so and so?”

Our humble home furnished on its shelf several books, one of which was called a “doctor book.” I read that book through and through, and proved a good many of its statements, and also proved the absurd folly—at least I thought I did—of some statements. Now, do not think I am going to make a tirade against doctors. Our family physicians are to-day benefactors to humanity; and even in olden time they *meant* to be benefactors. I say this, even if it is true, as has been stated, that, through mistaken kindness, they took the life of the father of our country by drawing his blood away from him just at a time when he not only needed every drop he had but a good deal more if it could have been furnished.

As I became older, when multitudes of people assured me a thing was true because they had each and all been benefited, I decided that “many witnesses” ought to settle the matter. One day at school, however, when the whooping-cough was raging I was told that a certain woman in the neighborhood could cure it, and the children all flocked to her door, when school was out, to get cured. When I inquired into it, I found she gave some of them a raisin, others a piece of dried apple, still others a bit of bread. In fact, the medicine was different every time. This was a real stunner. Then I was gravely informed that whatever *she*, this particular woman, gave a child, it cured him of the whooping-cough, because this woman, when she got married, did not change her name! Her husband’s name was exactly the same as her own; “and,” my informant said, “*everybody* knows that a woman like that, when one can be found, can *always* cure the whooping-cough. Just you eat what she gives you, and you will not cough any more. Try it and see.”

Well, I “bolted” at this sort of *science*(?) for I remember I decided, like Galileo, that, even if the whole world declares to the contrary, and gives any amount of testimony, I would never consent to swallow such philosophy (!).

Now, dear friends, the thing that troubles me, as God lets me look forth into this world of ours, is that there are multitudes of cures that have no more sense or science about them than this cure for whooping-cough. And yet people insist that they have tried it, and it is true, and they keep on spending their hard earnings. I have said so much about Electropoise and Oxydonor I hardly need bring it in right here; but after a prolonged “fight,” extending through several years, the world has mostly admitted I was right about these senseless toys. I am not sure, however, that some one will not write to me now in all seriousness, and tell what wonderful cures Oxydonor has performed in their own family.

You know how I have been fighting, not only superstition but deliberate impostors, in regard to foretelling the weather. Yes, I have been "snowed under" several times; and, worst of all, by (apparently) educated and intelligent people, who insist, in spite of all I can say, that we have men living who can tell a year ahead what the weather is going to be on a certain day. When the Weather Bureau took this matter up I turned to that for relief, thinking our government would certainly be able to find men who could sift truth from falsehood, or science from folly and superstition, and, thank God, I have not been disappointed. It is true, the papers (some of them) say, "The Weather Bureau predicts an unusually cold winter," or something to that effect. Every time I get hold of such clippings I forward them to the Department, and each time comes the public announcement, very emphatically, that the Weather Bureau has never yet even hazarded a *conjecture* as to what a certain summer or winter is likely to be. If you see any such piece of folly in your home paper, or in any other, call the editor down. Tell him he is not up to the times.

Well, when I heard about the bombardment of thunder-clouds with artillery, I fell to wondering whether humanity had any artillery equal to such a task; and my faith in and admiration for Chief Willis L. Moore, of the Weather Bureau, were greatly increased by noticing that the head of the Department stood squarely against such a waste of money. As this whole matter illustrates the difference between sense and science, and as it shows, too, not only how crowds of people or even a great nation may be misled into spending vast sums of money, I have thought best to copy at considerable length from the author's report to the Department of Agriculture for the year ending June, 1901.

DESTRUCTION OF HAILSTORMS WITH CANNON, ETC.

Considerable interest has been aroused among agriculturists in the United States relative to the prevention of hailstorms by the use of explosives fired from specially designed cannon. The experiments conducted along this line by grape-growers of France and Italy have aroused popular interest in this country. The theory is not a new one, though perhaps not so ancient as the idea that precipitation occurs soon after and as a result of the explosives used in battles. As early as 1769 the Marquis de Chevières, a retired naval officer of France, thought that he could combat the scourge of hailstorms by the firing of cannon; but his experiments, like those conducted by many others at various times during the past century, were not productive of definite results.

One of the most serious drawbacks to grape culture in Europe is the destruction caused by hail, and the growers are naturally interested in any thing that promises to give immunity from such damage. During the past two or three years renewed interest has been taken in the matter by the vinedrivers of certain parts of France and Italy. Several manufacturers have placed upon the market a special form of cannon which they claim will effectively break up hail-bearing clouds. The belief in the efficacy of this method of protection has become quite general in Europe, although scientists versed in the physics of the air have not expressed confidence in the system.

In brief the apparatus in use consists of a cannon fitted with a funnel-shaped conical extension. The difference between the various forms of cannon that are used lies mainly in the shape and size of the funnel extensions and the size of the powder charges.

Usually the cannon are fired vertically upward, although in some instances the apparatus is inclined toward an advancing cloud. The effect of the funnel attachment is to cause the formation of a mass of rapidly revolving air, or vortex, which leaves the mouth of the cannon with tremendous velocity. In shape, these vortices can be likened somewhat to the rings or puffs of smoke made by a person smoking a cigar. It is claimed that these whirling masses of air, intermixed with gases from the explosives, are forced upward to a sufficient height to enter the hail cloud and destroy its hail forming processes. If it is granted that these rings ascend to a sufficient height to enter the cloud, I am of the opinion that the force of the ring is too puny to have any appreciable effect on the cloud.

Many experiments have been made for the purpose of ascertaining the actual height to which these air rings rise before being dissipated. In a report by Profs. J. M. Pernter and W. Trabert, who, at the invitation of the Imperial Department of Agriculture of Austria and of the inventor of one of the methods, made as complete an investigation as was possible, and, under various conditions, these scientists stated that they were not able to report any thing positive as to the value of hail-shooting. They reported that, using the largest cannon and the heaviest charges, the vortices did not ascend to a height of 1000 feet on an average, although in some instances greater distances were obtained.

There is a marked difference of opinion as to the effectiveness of cannon-firing, with the manufacturers and many grape-growers on the one side and the scientists of America and Europe on the other. The former maintain that hailstorms can be prevented in the manner described, while the latter claim that the force exerted by the explosives is infinitesimal as compared to the forces of nature that are exerted in hail formation, and that experiments conducted by the adherents of the cannoning process themselves have not produced convincing results. The number of thunderstorms from which hail is precipitated is but a small percentage of the actual number. In most localities of the United States a whole season sometimes passes without a fall of hail, while in seasons of abnormal thunderstorm frequency the number of hailstorms is small. While in the grape-growing regions of France and Italy there may be greater hailstorm frequency, it is still true that the number of hailstorms is few as compared to the number of thunderstorms without hail. The experimenters score a success whenever they shoot at a thunderstorm cloud that does not produce hail, although the chances are greatly in favor of there being no hail in the cloud. Again, they excuse the occurrences of hail in spite of a bombardment by saying that the cannon was not large enough or the powder charge sufficiently heavy, and declare that the hailstorm was far less severe than it would otherwise have been. How is one either to prove or disprove such statements?

It is true that many important discoveries have been made by experiments that were conducted contrary to scientific theories, and in the matter under discussion it is not our intention to overweigh the scientist or to underestimate the practical investigator, but unquestioned facts and not explanations must be the proof of results. Scientists both in America and in Europe declare that hailstorms can not be prevented by the use of cannon and explosives of even greater power than have been used or that it is possible for man to use, and they base their belief on such knowledge of the forces of nature as science has revealed. Those opposed attempt to break down the scientists' argument by declaring that no one has yet satisfactorily explained the processes of hail formation. This is true to a certain extent, but enough is known upon which to base a logical opinion.

But there are other reasons for believing that the use of cannon and explosives in preventing hailstorms is not effective. Mr. Stiger, one of the inventors of the apparatus in use, claims that hail is formed in quiet spots in the atmosphere, where atmospheric moisture crystallizes out in large crystals in a manner analogous to the formation of large crystals of salt in liquid solution. I agree with Professor Abbe that there are no such quiet spots in the atmosphere, and hailstones are not crystals, but masses of ice with only a partially crystalline structure. Even the perfect crystals of the snowflake are formed in the midst of rapidly moving air. Hailstorms are generally local and very erratic. Some have maintained that they are controlled by the hills or the contour of the ground or by the presence of forests and lakes, and this may be true to a certain degree; but, practically, the whole question is one of ascending and descending currents that characterize whirlwinds and thunderstorms.

Several thousand shooting-stations have been established in Italy and France during the past two years, but reports received from them give no definite data in support of the success of the experiments, although there is no doubt that the cannonading is believed to be effectual by the farmers who do the work. Waves of irrational enthusiasm sometimes sweep over a community, only to be regretted in subsequent years when calmer judgment has come to prevail. We have but to remember the experience of our own country only a few years ago with the rain makers, and how firm was the belief of thousands of people in the sub-arid and arid regions of the West that the use of powerful explosives would produce rainfall.

Thousands of dollars were expended in these experiments before the absurdity of the claim was demonstrated. It is a fact worthy of remark, that the hail-shooters are now using practically the same methods to dissipate the clouds that the rain-makers used to produce them. Time and experiment will probably demonstrate that hail prevention by such means is as impracticable as rain production. The fact that 15,000 or 20,000 shooting-stations have been established is of itself no argument as to the efficiency of the process. One might as well argue that the moon really affects the weather because a million people believe it and can prove it—to their own satisfaction.

A knowledge of the exact truth on any question of natural science is not easily attained. The hail-cannonaders base their reports of success upon such statements as "a black cloud was seen approaching, cannon were fired, and the cloud passed over without hail," or "it passed to one side and the hail did not fall on the protected vineyard, and there the hail ceased," or "the cloud broke in two, passing to the right and left, leaving the sky cloudless over the cannon." Now, these are quite common cloud and storm phenomena, and they will frequently happen without cannonading. There is no way of telling by the sight of an approaching cloud whether or not it is accompanied by hail. Therefore, if the cannon be used every thunderstorm would have to be bombarded, although statistics have demonstrated that only one thunder-cloud out of a great number contains hail. In other words, there would be a tremendous waste of time, money, and energy in unnecessary bombardments.

After examining all that has been published during the past two years on the subject of hail prevention, I have to repeat the opinion heretofore expressed that we have here to deal with a popular delusion, and that efforts should be made to prevent its spread in this country. The great processes going on in the atmosphere are conducted on too large a scale for any man or any nation to attempt to control them. According to Prof. Abbe, the energy expended by nature in the production of a hailstorm, a tornado, or a rainstorm probably exceeds the combined energy of all the steam-engines and explosives in the world. It is useless for man to attempt to combat nature on this scale.

Now, friends, I hope you have not only read the above carefully and thoughtfully, but I think it will profit you to read it several times. Most of you know more or less of the experiments in regard to "rain-making." A little periodical for children, and one that I have a great admiration for, lately announced, while illustrating something else, that the experiments made by the general government of the United States in regard to producing rain, by the use of explosives carried up by means of a balloon, were a perfect success. I was going to forward the extract to Mr. Moore, but I afterward ran on to a contradiction of the statement by Mr. Moore himself. No success of any kind—at least nothing that would bear the searchlight of science—has ever been accomplished in rain-making. Certain enthusiastic inventors, who had a pecuniary interest in the matter, claimed success, or did claim it at the time the experiments were made. As it is now several years since the matter has received any attention, we may safely conclude, I think,

that our Weather Bureau is sound and level-headed.

In concluding this subject I wish to make an extract from an article in the February number of *Good Health*, entitled, "The Curse of the Drug Habit."

Various enterprising patent-medicine firms, by persistent and extravagant advertising, and partially by taking advantage of that superstitious reverence which still lurks in the public mind for drugs that are put up under mysterious names, succeed annually in disposing of \$20,000,000 worth of their nostrums. The average invalid demands something more substantial than extravagant claims. As there is no drug that will so effectually smother the immediate cries of an outraged nerve as some form of opium, and as there is no medicinal agent that can supply such satisfactory temporary exhilaration as cocaine, therefore these drugs are beginning to enter largely into the composition of these so called "remedies." They assist the enterprising manufacturers in securing reliable and convincing testimonials as to the remarkable efficacy possessed by their particular "cure" in furnishing immediate relief from pain. Soon a large number of these invalids discover that they can purchase the active agents for themselves cheaper than the patent medicine man can supply them, mingled as they are with a variety of more or less inert substances. Unfortunately, many drug fiends made their first acquaintance with these drugs under the physician's supervision; but after they passed from his observation they did not dispense with the fascinating effects of the drugs he prescribed.

FLORA HOME—A CAUTION TO MINISTERS, AND LAYMEN TOO.

Your write-up in regard to Flora Home was a good and true one, but it did not suit the sharks. Had I known that you were there I would have gone after you, and you would not have got drunk on tobacco at my place. I lived one mile west of there. Mr. Wilson, of the F. F. & F., of Chicago, was the man who got those people down there, and he was a man who would expose frauds and talk religion and temperance just as you do, and would preach when there on Sunday, and do all he could to get people to stay when they were there, to get others to come.

Orange Heights, Fla.

[S. R. BOYD.]

I have given the above because I wish to urge more caution not only to ministers but to professors of religion in general. Speculators have learned by experience that, if they can get a minister of the gospel, a religious paper, or even a man who can talk and pray in prayer-meeting, to boom a town or an oil speculation or a gold-mine, they can draw in lots more people. I have sometimes remonstrated with ministers and others for lending their names to such schemes, and they often reply, "Why, it is a good thing," meaning by this that they had faith it was a good thing. But, even if this is true, ministers especially should let such things alone. There are grievous losses and failures all the time. We should all be careful about urging anybody to put his small hoard of earnings into any thing; and especially should we be careful about urging people to move away off into some new locality like Flora Home. If those who have pushed projects of this kind could visit Flora Home, and talk with some of the people who have been duped into investing their all, they would, I am sure, be more careful. Notwithstanding what I have said, I believe there are people who would make a good thing of Flora Home in some special line that the locality is adapted to,

just as Mr. Hale, the peach-man, is making a success of peach-orchards by the square mile down in Georgia. But where there is one like Mr. Hale there are thousands who had better keep in the beaten track. I know the above hits me a little, and I thank friend B. for his timely and wholesome rebuke. It will help me to be careful about what I recommend—especially anything along the line of real estate or other sorts of speculation gotten up on purpose to draw in the unsuspecting.

MRS. HARRISON TELLS US HOW TO MAKE A
HOE-CAKE, AND SOMETHING ABOUT
FLORIDA.

Mr. Editor:—I've exceedingly enjoyed reading your account of how you made that outing-place in Michigan. I would shut my eyes and watch you digging out the spring, and listen to the rippling water as it went purling away.

What a sweet piney smell in that new cottage! How I should have loved to sit around that improvised table, and share the fresh fish and potatoes—much more than at the home in Medina! There was one thing you lacked, and that was a hoe-cake, baked as the native Floridians bake it, with slight variations. Take two small cupfuls of corn meal, one teaspoonful of salt, the same of sugar, and pour on to it boiling water until it is thick enough to spread on a griddle nicely, and then set it over a slow fire. When it is baked on the bottom turn it over, or, better still, put it into a hot oven until it browns nicely. When fish is eaten with this kind of bread the stomach has such a restful feeling, and you are not troubled with thirst as when it is eaten with fine flour bread. This is the true bread of the South; and we often meet Southerners who have been north and starved because they could not get their bread. With many kinds of food they don't want corn bread made with eggs and sour milk, which they call egg bread.

Mr. Root, why didn't you make a winter home in Florida? You could have found some sheltered sunny nook, and taught us how to raise crops all winter. On my veranda I keep boxes of rich soil, supported by tin milk-cans, to keep the floor from decay. The first day of my return I empty the soil from the boxes and shovel it back again; then plant onion-sets, radish, and lettuce seed; sprinkle with warm water, and cover up at night, if chilly. In a few days the plants are up, and in a short time we are pulling out the crisp tender onions to make room for the lettuce. During the zero freeze we did not lose our lettuce. The ground froze, but we thawed it out with water from the well, and it was not injured. We also make garden in the open ground, but we can protect our box garden easier during frosty weather. Every thing grown in Florida soil is very sweet. Her turnips and beets can not be surpassed anywhere.

Any person who has to seek a warmer clime every winter had better purchase a little home. Plenty of them can be had cheap, and a person be more comfortable than traveling around. I once asked a lady living in a fine house, elegantly furnished, if she did not like to leave it and live in her board cottage of one room in Florida, and not have to sweep, dust, and clean? She replied, "Indeed I do. And I'm just as happy, and more comfortable."

I've one orange on one of my trees, but it's a big one; and, Mr. Root, if you come we will sit before the open fire and eat it, and talk bees. If you remain over night you can sleep on a bed made of saw palmetto leaves, and breakfast on fish and oysters from the finest bay on the continent, with a hot hoe-cake, of Mrs. Harrison's own make.

Peoria, Ill.

MRS. L. HARRISON.

Dear Mrs. H., nothing would give us more pleasure than to have you sit down with us at our meal in our cabin in the woods; and if I ever get down your way again I shall most surely hunt you up, and I shall be sure of just such a warm welcome as you promise. We may some time try a cabin in the woods in Florida.

Tobacco.

TOBACCO AND OUR SCHOOLS.

In years past I have spoken some very kind words in regard to our Ohio State University at Columbus. I have spoken with pride of their buildings; I have spoken of their apparatus, their machinery, and their methods. But I am now going to complain of just one thing—perhaps I might say of just one *person*. They have a professor there, one who, I understand, is "away up," and who smokes a pipe while he gives his pupils advice and instruction. I do not know that he does this as a general thing, right along; but I know that he did talk to one young man, advising him as to how much and how little Latin he should take, besides other matters, and he was obliged to take his pipe out of his mouth when he spoke. This young man was not a pupil; but he visited the State University with the view of becoming one. I am not sure that the pipe was the means of deciding him to go elsewhere, but he *did* go elsewhere. I talked with several others of our educators in the service of the State, and they admitted that such was his custom, and deplored with me the influence that this example was likely to have on our Ohio boys. Now for the fruit of keeping a professor of this sort.

A few days ago a young man who has been for some years finishing his education at the Ohio State University received an application for a recommend, and this is the one I gave him, addressed to a well-known professor at Ithaca, N. Y., where my young friend expected to get a situation:

Prof. L. H. Bailey Ithaca, N. Y.

DEAR SIR:—It affords me great pleasure to say that I have known the bearer from boyhood up, and that he has all his life been a model of steadiness and uprightness. I believe him to be a young man who will make his mark in the world, especially if diligence and close attention and most excellent habits will contribute to that end. Any thing that you can do for him will not only be gratifying to me and his host of friends here in Medina, but I think it will prove an advantage to yourself and any others with whom he may have to do. Your old friend, A. I. Root.

After I wrote the above recommend it troubled me a little because I had not known personally very much about this young man since he left his home on the farm near Medina; and several days afterward I was not only astonished but almost appalled on being told that this model young man—one who, from what I knew of his Christian parentage and early habits—one whom I felt almost as sure of as of my own boys—was not only using tobacco, but that he *defended its use*, and, in spite of every thing his friends could say, he declared his intention to stick to it! I at once wrote him what I had heard, and said that, if it were really true, I must ask to withdraw my recommend, and that, if it had already been sent on to Ithaca, I could not see any honest, straightforward way out of the dilemma but to send this second letter,

to be presented *with* the recommend. Below is the reply I received. Of course, I suppress all names.

Mr. A. I. Root: Your letters of Feb. 25 and March 6 are at hand and contents noted. I was very grateful for the kind recommendation, and am sorry that you felt the necessity of recalling it. For the time being I did not think of your strong prejudice in the matter, and so hope you will pardon my seeming deception.

It is evident that your ideas and those of some of my relatives do not agree with my own regarding the use of tobacco. However, it is of no use to argue those things, for we all have a right to our own opinions.

I have some few grains of honesty left, so I do not promise to quit smoking, and send the recommendation along. While I am not and do not intend to be an excessive smoker, yet I do not feel justified in promising away my personal liberty in the matter to secure a recommendation on false pretenses, as it were; so I take the only honorable alternative left me and return your letter.

Hoping you will not consider me eternally lost, I am

Sincerely yours,

Ohio State Univ., Columbus, Ohio, March 7.

You will notice from the above that my young friend admits he knew how I have battled against the use of tobacco all my life. You will notice, also, he has got hold of this taking phrase, "personal liberty." I wonder if that professor with a pipe in his mouth used the expression in talking with his pupils. And, by the way, one of the best illustrations of personal liberty I ever came across was something like this:

I was pleading with a man who, in a drunken fit, had turned his wife and children out of doors in winter. I asked him to sign the pledge, but he refused. One or two others who were present and heard the talk signed the pledge. One of these afterward broke it. My friend, in speaking of it to me, said, "Now, Mr. Root, in view of this don't you think it was better that I did not sign the pledge, when you urged me so hard?"

You will notice there is considerable logic—that is, of a certain sort—in that man's reasoning. Our old pastor, Mr. C. J. Ryder, now of the American Missionary Association, Boston, Mass., placed the matter in its true light as follows:

"Mr. H., you mean by that, after you had refused to sign the pledge you could *get drunk with a clear conscience*; whereas, had you signed the pledge this would not have been your privilege."

Now just a word in regard to the college professor (or, if you choose, one of the leading professors of the Ohio State University) smoking a pipe in the presence of his pupils. What do the people of Ohio—yes, or the people of any other State—think of the matter? School-teachers, as a rule, do not use tobacco; in fact, they can not consistently use it while they urge on their pupils the importance of the principles taught in our standard text-books in regard to the future health and best development of the human body. I should like to have our people consider this matter, both men and women. Is there anybody who prefers to have a boy under the tuition of a professor who has to remove his pipe from his mouth before he can talk to his pupils?

Just one thing more: Our young friend says he does not *intend* to be an "excessive

smoker." That sounds honest and sincere; but at the same time it sounds boyish, and, in fact, he is hardly old enough yet to realize the danger he is innocently, yet surely, deliberately walking into. May God help him.

Right here is another thing about tobacco and education that confronts us. Some time ago our Ohio Experiment Station at Wooster was asked to make some experiments in regard to the best varieties of tobacco and methods of culture, etc. But the men at the head of our station have the welfare of our people so much at heart, especially our boys', that (if I have made no mistake) they asked to be excused from entering into the work. Of course, there was a "racket" about it. Just a few days ago a young man who has been through a two years' course of instruction at the Wooster Station visited us to look over our plant. He is in the employ of the State of Texas, and wishes to introduce bee culture on their State Experiment Farm. I asked him in regard to the matter I have mentioned at Wooster. Then I found out that he himself was a tobacco-user. He said: "Mr. Root, it seems a little hard for the farmers along down the Ohio River, who make their money on tobacco, to be told that the people at the experiment station refuse to assist them in their industry."

Now, I do not remember my reply, but I think I crowded him a little on the moral standpoint of the matter. He replied, as nearly as I can remember, as follows:

"Why, Mr. Root, it *is* true, without question, that the tobacco industry has nothing to recommend it except the *money* that there is in it."

I replied, "But there is *money* in starting more breweries and distilleries."

His answer was that he did not think the two were exactly parallel. As the subject seemed to be getting a little painful, we dropped it and talked about introducing bee culture in Texas.

Now, once more I wish to submit this question to the people of Ohio—yes, and of the whole United States. Our boys are being educated, and their habits and their tender minds are being formed. Their bias for life is being fixed, not only at our Ohio State University, but at our Wooster Experiment Station. These institutions are both conducted by men who are servants of the people of Ohio. What do we want them to do about it? And this is a question on which the *wives* and *mothers* have a right to express their opinion. Is it not so?

J. B., Va.—To keep mice out of hives, providing the entrances are deep, use a coarse-mesh wire cloth, coarse enough to admit bees through it, but fine enough to bar out the mice. This will give the bees plenty of ventilation in the cellar, and at the same time prevent the rodents from annoying them.



PARIS GREEN—HAS ANY THING BEEN DISCOVERED OR INVENTED THAT IS BETTER AS A FUNGICIDE?

The Department of Agriculture, in Farmers' Bulletin No. 146, discusses the matter of insecticides and fungicides. They have made a series of exhaustive experiments, and it has turned out just as I expected it would. All these new things that are advertised and puffed depend on Paris green or some other preparation of arsenic. Not one of them will do the work as cheaply as Paris green; and a good many of them, while costing ever so much more, are not nearly as efficient. A great number of them that claim to fertilize the soil while they kill the bugs have no fertility about them whatever. These experiments have been made with "green arsenoid," "para-green," London purple, "lead arsenate," "pink arsenoid," "white arsenoid," "bug death," "slug shot," "Smith's vermin exterminator," "veltha," "fibro-ferro feeder," etc. Of all these mentioned, London purple comes nearest to Paris green in furnishing value received. Slug shot is mainly crude gypsum. It gives satisfaction because the gypsum is ground and mixed accurately by machinery. But the Department decides, as I decided years ago, that it is an extravagant way of purchasing the Paris green you need to kill the bugs. Lots of these things are sold and used just because of being so extensively advertised. This bulletin is prepared under the direction of United States Chemist Wiley, and is authority on the subject. I am exceedingly glad that Prof. Wiley has taken this matter in hand, and made some experiments, at the expense of the general government, that can be depended on.

GRAND RAPIDS LETTUCE SEED—A GILT-EDGED STRAIN.

Mr. Root:—I have ordered a sample of your California Grand Rapids lettuce seed, to compare with my greenhouse-grown. I told you last year that I had pulled 600 feet of lettuce without a single cull or sport, but did not ever expect to do it again; but I am glad to say I have had 10,000 feet this winter, with only three sports in the whole of it. I am surprised how three years' care in growing seed has brought it so near perfection—that is, if the feature is a permanent thing, which it is too soon yet to be sure of.

Waterloo, P. Q., Feb. 13.

THOS. SLACK.

Friend Slack, I rather think your improvement in seed is a permanent thing, or pretty nearly so. It agrees with my experience. The Grand Rapids lettuce is not only the easiest and prettiest plant to grow under glass, but it seems to be wonderfully docile, if I may use the expression, when you give it to understand what is wanted. Prof. W. J. Green, of our experiment station, has just been through our greenhouse, and he says they have succeeded in getting

a beautiful strain of the Grand Rapids lettuce, starting with seed furnished by you. No doubt your strain is much ahead of our California grown; but in our greenhouse we hardly find one bad plant in a thousand from our own seed. In contrast with this I may mention that I sent to a firm that advertises lettuce and other vegetable-plants all the year round, in many periodicals. As they do so large a business I supposed they would, of course, have the best strains. They offered plants by mail at 15 cts. per 100. I sent for samples, particularly to see if they sold transplanted plants at that low price. Well, they were not transplanted, and the whole hundred is now ready to cut. At least a quarter of them are sports of all shapes and shades. Some of the plants are enormously rank and luxuriant, but they are not up to our Grand Rapids. Now, when good seed can be bought at the low price of 40 cts. per lb. it does seem to be too bad to grow plants for sale of this sort. I shall be glad to receive your report in regard to the California-grown seed.

COLOSSAL LADINO, OR MAMMOTH WHITE CLOVER.

Our friends will find something in regard to this on pages 135 and 137. Since then Dr. Miller has sent the following:

Thanks to the unwearied efforts of my good friend Mr. Ed. Bertrand, editor of *Revue Internationale*, I have finally received a sample of seed of the new giant white clover, *Trifolium repens giganteum*, var. *Colossal Ladino*. Now let's give it a fair chance at Medina and Marengo. I would send M. Bertrand's letter, but as it is short it will be more convenient if I send a translation. He says: "I inform you that I have at last found seed of the white clover, *Colossal Ladino*; that is to say, that the person whom I had charged to continue the search has discovered a house at Lyons which sells it. This new variety was obtained in Lombardy. It is, in Italian, *Trifoglio Ladino bianco vero lodigiano*, or *Trifolium repens giganteum*, var. *Colossal Ladino*. I send the sample received. Let me know if you want any quantity. The price is 10 francs per kilogram, or 85 francs for 10 kilo." That makes the price in English \$1.14 a pound; 22 pounds for \$17.00. Please let me know at once what to say to him about wanting any, or else write direct to M. Ed. Bertrand, Geneva, 4, rue du Mont de Sion, Suisse (Switzerland).

Marengo, Ill., March 14.

C. C. MILLER.

I at once took the small packet of seed and sowed it in the greenhouse in our regular seed-pans for choice and valuable flower seeds. In four days the clover was coming up, which speaks well for its vigor and vitality. I am going to have these little clover-plants potted, and "push" them, as I have been telling you about, in that little greenhouse. These plants, with the early start they have (the seed was sown about the middle of February), will, I expect, blossom and furnish seed this year. Any one who can not make a clover-plant grow in his garden must be a bungler indeed. The greatest trouble we have in our greenhouse is to "yank it out" when it threatens to outstrip and smother other plants. We have not thought best to send for the seed, for there would not be time to get it this year so as to produce blossoms

anyhow—at least I suppose not; and with our stock of thrifty young plants we can give the plant a good test and decide whether we want the seed another year or not.

GINSENG GROWING.

We grew a small bed of ginseng through 1901, and are so well satisfied there is money in it that last fall we bought 50 pounds of green wild root, dug in this vicinity, for \$190, about 4000 roots in all, of all sizes from seedlings to 402 roots. They are set in three 5x200-foot beds, 8x10 inches, and will be shaded by lath screens on 8 foot pos. Beds are on sandy land, we 1 fertilized, originally in hardwood timber. We have nothing for sale, as we expect to invest as much more next fall in order to get stock for growing enough seed for our own planting.

Mr. Palmer, of Wisconsin, mentioned on page 29, must be satisfied to wait a long time—as he says, "Twelve or fifteen years." Bulletin No. 78, 1898, page 141. Kentucky State Ag. Experiment Station, says roots five years old (grown in rich beds, I suppose), average 2½ oz. The above is a good pamphlet.

East Cons. able, N. Y., Jan. 7.

H. P. LANGDON.

SWEET CLOVER AS A FODDER PLANT.

Reading the reports on sweet clover I have been greatly amused at the very opposite and extreme opinions which your different observers express. Is it not funny how differently different persons will see the same thing? I have been noticing this sweet clover for many years, and I'll tell you what I saw. He in Northwestern Illinois it is certainly not a bad weed. It never spreads into cultivated fields. Two careful mowings a season, for two successive years, will clean it out easily. For pasture it is worth nothing. Cattle will nibble at it, especially when it is young enough, so as to exterminate it in short order, but won't graze on it as they will on blue grass, timothy, or the real clover. They will pick at it as they will at ragweed, dog fennel, burdock, and such fodder plants. So far as bees are concerned I can't say much. On a few occasions I have seen it swarming with them while again I have passed it many times a day for weeks in succession, and have seen only a few scattered bees working at it, and that at a time when flowers were very scarce. The honey from it is not liked at all here.

W. M. S. FEHR.

Lakota, Ill., Jan. 8.

SWEET CLOVER FOR COWS AND HORSES IN KANSAS.

Friend Root:—It surely is strange why some write that cows and horses will not eat sweet clover, and others that they will. Are there not two kinds? I can not understand why it should be thought such a difficult task to kill it, as it grows at our home in Kansas. The second year it dies just like a cornstalk; and in order to get it off the ground it is only necessary to keep it from seeding and scattering the seed. I have no seed to sell, although we have had plenty to go to waste. We have gathered only what we wished to sow. Our stock eat it green. We have never cut any for them although I think they prefer timothy and clover. When we consider that different stages in the growth of any plant change it, we should be careful about hasty conclusions.

J. T. VANPATTEN.

Pacific Grove, Cal., Jan. 20.

SWEET CLOVER—WILL STOCK EAT IT?

On page 661 friend Zurburg gives his experience with sweet clover. My stock eat it because they like it. In fact, it has been a great boon to me this dry season. While my neighbors' stock were eating dry blue grass, my own were enjoying themselves eating sweet clover. To get best results for pasture, mow it off about six inches high, just as it commences to bloom. It will then send out new shoots, and bloom until severe frosts come. Sweet clover yielded honey abundantly during the severest part of the drouth.

Fancy Prairie, Ill., Dec. 14.

P. J. ENGLAND.

MORE ABOUT SWEET CLOVER.

Tell Mr. J. A. Johnson, of Greenhill, Ind., that my Ohio cows will eat sweet clover along the roadside, so there isn't any need to mow it to keep it down; and tell him if cut when 2½ feet high, and cured as other hay, then salted when put into the mow, as any hay

should be, any kind of stock will eat it, and not require to be starved to it either. Sweet clover is a great fertilizer—no question about it. We have plenty of it here, and I know what I am talking about.

Liberty Center, O., Dec. 29.

S. A. PALMER.

SWEET CLOVER FOR COWS, HORSES, PIGS, CHICKENS, ETC.

I find here that all kinds of stock will eat sweet clover. Cattle, horses, hogs, and chickens eat it. It comes up early in the spring, the first grass that grows, and the chickens pick it off and keep it close to the ground till quite late. Last summer I had some hogs shut in a pen. I cut the clover when it was from a foot to 18 inches high, and they ate it all up. Last fall we let them run out, and they ate the young clover, and dug after the roots along the road, some places a foot deep. I did not have to teach them to eat it but I had to shut them up because they were going too deep into the ground after it. I had a piece sown to sweet clover along my pasture fence, on a piece of waste ground between my neighbor and me. The cattle would reach through the fence, and they reached so far they would break the wire, and sometimes break the posts. My neighbor came one day and found them through the fence. He said, "Those cattle are reacting for that sweet clover. I am surprised to see them eat it. I did not suppose that anything would eat it." He asked me if he could have some of the seed. I told him he could; and when he cut his grain he turned in with the binder and cut a swath and banded it. The cattle were not reaching through the fence because they had no feed for the pasture was good inside. Those who can't get stock to eat clover should turn them out early in the spring, and they will eat it all right.

Our bees did well last summer. We got 1000 lbs. of honey from 11 colonies, spring count, and increased to 20 colonies. They are in winter quarters, and seem to be doing all right.

R. CHINN.

Wakefield, Neb., Jan. 28.

THE NEW RUSSET (SCAB-PROOF) POTATO.

I planted them the 10th of May on ground where I raised the Freeman variety last year that were so scabby they were not marketable at all. They came up well, and yielded me 12 bushels of very nice potatoes, clean and smooth. I have not found a rough or scabby potato in the entire lot. The volunteer Freemans that came up among them are so scabby they are fit only for stock feed. The tubers are somewhat pointed at the outer end, but not enough to injure the potato. I distributed about two bushels of them among my customers, to learn something about them as a table potato, and heard only the most satisfactory reports of them. They are reported to be the most solid and white-t potato grown. The samples created quite a demand for them to the exclusion of other varieties. I shall give them a more extended trial next year. Owing to the long hot dry summer and fall in Southern Illinois, our Irish potatoes are nearly all raised under wheat straw, which is spread over them when they are beginning to come through the ground. This makes a very smooth and pretty tuber.

Marissa, Ill., Nov. 25.

W. M. LITTLE.

Thanks for your report, friend L.; but I am sorry to say we had some russet potatoes last year on some ground very badly infested with scab that were either scabby or affected with something that looks very much like it.

THE SOY OR SOJA BEAN.

In 1900 I ordered soy bean seed from you. It grew very tall, and made the best protein hay we ever raised. I sowed it the 4th of June, and cut it about Sept. 15 for hay. This period covered 103 days. We let an acre stand for seed till Oct. 10, when frost stopped the plants maturing perfect seed. This was 124 days. Now, what I wish to ask you is this: Do you know an earlier variety of this valuable plant? Is there a variety that will mature seed in 100 days? I notice in reading the Farmers' Bulletin, issued by Department of Agriculture, Washington, that several varieties are spoken of. It speaks of one variety maturing seed in Massachusetts. I am looking for a variety that will mature seed in this latitude—northern part of Holm's Co.—from the time it is safe to plant in the spring. The kind you sent me in 1900 must have been a late

variety, judging from the enormous growth of plants, some being 4 feet or more in height. C. O. SNYDER.
Millersburg, O., March 6.

Friend S., we have kept for many years two kinds of soja beans—the kind we sent you, which is the staple sort found in the markets, and the smaller or earlier kind called the American coffee-berry, which we have mentioned so frequently. The only objection to this early kind is that it does not furnish nearly the amount of feed or material to plow under that the late one does, and our stock of this seed this year is quite limited. For forage purposes I believe it is pretty well settled that the late large kind is the best, even if you have to have your seed grown in the South. It is now offered for sale in the southern cities by the carload, at very low prices.

THE TONGAN BEAN.

I have had Tongan vines each summer for several years, but the past summer failed to mature the seed. It is a rampant grower and makes a fine shade. From the very large nodules on the roots I should think it would make a good land-enricher.

Washington, D. C., Jan. 27. C. A. JOHNSON.

I have been considerably disappointed in years past because we did not get more reports from the new things I have recommended and offered to our friends for trial. One of these is the Tongan bean; and here at this late date we have a good report. We can still furnish seed in five-cent packets.



PURE WATER TO DRINK.

My Root.—In GLEANINGS for May 1, 1898, you wrote an article on pure water, and mentioned the sanitary still made by the Cuprigraph Co., that you were then using. I wish to know if it still continues to give you the same satisfaction that it did at that time, and also as to its durability. JOHN R. COLVIN,
Olyphant, Pa., March 7.

For three or four years past I have used only distilled water—that is, unless I could get nice rain water without much trouble. Sometimes when there is a big shower we set a lot of tin pans outdoors, and the water thus caught is just as good as that from the sanitary still—in fact, it is practically the same thing. After our slate roof has been well washed from coal smoke by a heavy rain we turn the conductor, and run the water off into stone crocks. This does very well, but it is not equal to the rain water that has not been on the roof at all. While in the Traverse region I drank water from a rain-barrel, that came from a roof made of new cedar shingles. The cedar gave it a resinous flavor that I found rather pleasant, although Mrs. Root could not stand it at all. Well, of late our sanitary still has been standing idle because I discovered the rain water from the glass roof of the greenhouse was so near like that from the still I could hardly tell one from

the other. So you see circumstances must govern the matter. In our locality, with the smoke and soot from our factory and from two lines of railway blowing toward our house, it is a hard matter to keep the rain water real nice—that is, where it is drawn from a cistern. Mrs. Root is now petitioning for a second cistern, to be filled with water that falls in the winter, and to be kept for drinking purposes and nothing else. With my poor digestion that has troubled me for many years, especially when I am confined to office work, I find it of very great importance to comfort and health to be very careful in regard to the water I drink. When I am at work almost all the time in the open air, I can drink almost any good well or spring water; but almost every well, and, in fact, the greater part of the running springs, contain more or less minerals; and until one becomes accustomed (or, as you might say, acclimated) to this especial kind of water it is likely to give trouble. Of course, *distilled* water is *absolutely* pure; and where there is any suspicion that the water is causing trouble with the digestion I would assuredly try the effect of drinking only pure soft water.

Special Notices by A. I. Root.

PRIZEWINNER BEANS—AN ERROR.

On page 168 I said these beans would be, quart, 20 cts.; by mail, 24. As the postage on a quart of beans is 15 cts. instead of 4, the price should be, 1 qt., post-paid by mail, 35 cts.

Yes, and I made another mistake on page 168. I said there were 152 beans on one stalk. My young friend Alice Hilbert, who counted them, corrects me as follows:

DEAR MR. ROOT:—There were 36 pods and 104 beans on one of the biggest stalks. ALICE HILBERT.
Bingham, Mich., March 4.

ADVANCE IN PRICES OF CLOVERS, GARDEN SEEDS, ETC.

Instead of catalog prices on white Dutch clover read bushel, \$12; ½ bushel, \$6.25; peck, \$3.25; 1 lb., 25 cts. Sweet clover, 100 lbs. at 10 cts. per lb.; 10 lbs. or more at 12 cts.; 1 lb., 15 cts.; if wanted by mail, 10 cts. additional.

The above is for sweet clover with the hulls on. The hulled seed (sometimes called Bokhara) will be just double the above prices. I do not expect any decline in the above until the new crop is harvested.

Orange Danvers carrot, half-long, 1 oz. 5 cts; 1 lb., 50. Breadstone turnip. Ounce, 10 cts.; 1 lb., \$1.00.

Add 10 cts. per pound on all seeds ordered by mail.

Our seconds of early potatoes are sold out, and we have only a very few of the seconds left of the Craigs; so the Craigs are the only kind of potatoes we have for \$2.40 per barrel for seconds. Of firsts we have all kinds, however, at \$3.50 per barrel.

HUBBARD SQUASH SEED—PRICES ADVANCED, ETC.

Last year we sold about a bushel of Hubbard squash seed that were grown by a bee-keeper, who said they were from nice squashes from seed obtained from us. Now, we have not had one single complaint from abroad in regard to those squashes; but a neighbor says he planted that seed, and did not get a real Hubbard squash from the lot, but he had a good many other kinds. The mystery is, why not one complaint has come besides this from our neighbor. On our own grounds we did not raise a squash because the boys said when I was up in Michigan the bugs ate them all up in spite of anything they could do. If I had been there, no doubt we would have had some squashes. The vines were running, and looked well when I left. The seed was very handsome-looking, and germinated

nically, both in the greenhouse and outdoors. As a rule we prefer to get all of our seeds from some man who has a reputation at stake, like our great seedsmen; and we seldom buy any thing, even of as good a man as a bee-keeper, in the way of seeds. I can hardly think it possible we have a bee-keeper in our land—that is, one that is a real substantial man like the one I bought these seeds of—who would send out a bushel or more of seeds that he knew would swindle and injure every purchaser. Now, will not all of you who bought Hubbard squash seed of us last season tell us on a postal card whether it is true to name? We want to vindicate our friend who furnished us the seed. True Hubbard squash seed is now very scarce and high. The best price we can possibly make is: Ounce, 5 cts.; 1 lb., 60; 5 lbs., \$2.75; 10 lbs., \$5.00.

THAT BEAUTIFUL LARGE POULTRY-BOOK SENT FREE OF CHARGE TO SUBSCRIBERS TO GLEANINGS.

We are having a "raft" of calls for the poultry-book, and quite a few of the friends are forgetting to send 6 cts to pay postage. Others are sending the postage without any dollar. Of course, they say they sent a dollar a spell ago, etc. Now, we do not like to be close; but, dear brothers and sisters, I think we shall have to say that you must either send the dollar in addition to the 6 cts., before we can send you the poultry book, or else your subscription must be already paid for at least a year or more ahead. We can not send the book to any one who sent a dollar several months ago; and although 6 cts. is a small sum to h-ggle over, if we give you the book right out you must pay the actual postage. By getting these books by the hundred or thousand, they are made at an astonishingly low price, and we can manage so as to make the low offer of the poultry book. But please keep in mind that Uncle Samuel does not sell postage-stamps any cheaper, even if you buy a ton. We give away books and some other goods, but we really can not give away postage-stamps.

POTATOES FOR PREMIUMS.

We are having something the same trouble with potatoes. Any one who sends a dollar for GLEANINGS, asking for no other premium, may have 25 cents' worth of potatoes, according to prices in our seed catalog. You can have your premium potatoes sent by mail, express, or freight; but if you want them by mail, you must send the money for postage. For 25 cents you can have 5 lbs. of potatoes; but the postage and packing amounts to 10 cents for each pound; and I do not believe you want to pay 50 cents in postage for 25 cents' worth of potatoes. As a rule, potatoes should go only by freight; 25 cents' worth is hardly enough for a freight shipment; so by far the better way would be to have them shipped by freight with other goods. The express charges on only 25 cents' worth are very often as much as the postage, and sometimes more. Now, when you ask for potatoes for premium, will you please be sure to say how they are to be sent, so our clerks in the rush of the busy season, will not be obliged to puzzle their heads and go from one to the other and ask what to do under the circumstances?

THE EVERLASTING METAL LABEL.

I can think of hardly any one thing that has bothered me more than to keep the names of trees and plants scattered over the fields, as well as the names of new things in the greenhouse, so they will not get lost or become so dim they can not be read. Outdoors the label has got to stand sun, frost, snow, and rain. In the greenhouse it has got to stand dampness, and possibly be spattered with muddy water. Sooner or later every label we have ever got hold of has become illegible, and then it was gone entirely. Well, Willis G. Young, of Dayton, O., has got something, for either tree or pot, he says will never rust, tarnish, corrode, break, split, nor fade; and, judging from samples he has sent me, I think probably he is right. The label and wire are, I suppose, of aluminum. If you are selling plants, and want a lot of the same kind, the name is stamped on the metal. If you want only one of a kind he sends along a little steel marker, with which you can write on the metal almost as easily as you can with a lead-pencil. Price, including marker, 40 cts. per 100; still lower figures by the thousand. I regard it as an acquisition. See ad. on page 260.

NEW RURAL BOOKS.

The O. Judd Co. have just sent out three new ones. The first is entitled "Prize Gardening; How to Derive Profit, Pleasure, and Health from the Garden." Cloth-bound, 323 pages; price \$1.00. This book is mostly a

series of letters from men, women, and children who have made a success with different fruits and vegetables, flowers included, in towns and cities as well as in the country. The book is peculiarly interesting, as it consists of accounts of what has been done. It is filled with beautiful photos, making a series of object-lessons, and showing just how and in what manner certain desirable things are done.

Another book is devoted entirely to asparagus—its culture for home use and market. It tells all about raising the crop, from the seed to the mature product ready for the table; and it also tells about selling to the best advantage. By Dr. Hexamer. Forcing in hot-beds and frames is most fully discussed; also forcing in the open field by running steam between the rows; and finally there is quite a chapter, with several illustrations and full particulars, about putting up asparagus in cans. The size of the book is 5x7, 170 pages, bound in cloth. Price 50 cts. postpaid. Either of the above books can be ordered from this office.

FRUIT-HARVESTING, STORING, MARKETING, ETC.

It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexperienced in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price \$1.00. We furnish it to our readers for 75 cents; by mail, 10 cents extra.

While admiring these new books devoted to special subjects I fell to thinking how the world nowadays has branched out into specialties. We used to have books devoted to agriculture, some of them attempting to cover the whole field. A little later horticulture and agriculture became separate. Pretty soon fruit-growing and market-gardening were discussed separately, and then gardening under glass became a separate line of work from outdoors, and florists began to confine their attention to flowers and nothing else. When our advertising agent, a few days ago, sent our advertisement to a local publication they objected to it because it was not in their line of business; and I am really glad to see a periodical that objects to advertising any thing of any kind that is not in line with that particular class of journal. Well, just yesterday I got quite a pretty little book in paper covers, devoted to the cultivation of the petunia. It is not a book on flowers—it is devoted to just one flower. The author of the book has originated the famous star-petunia, and he will send the book, telling all about it, on application. Address A. B. Howard & Son, Belchertown, Mass.

ROOT'S GOODS

IN CENTRAL MICHIGAN. Best goods; best shipping-point; cheapest place to buy in state. Try me. List. W. D. Soper, Rt. 3, Jackson, Mich.

If You Want Root's Goods

we have them at Root's prices. Also A B C in Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

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1200 FERRETS. All sizes; some trained; first-class stock. New price list free. N. A. KNAPP, Rochester, Lorain Co., Ohio.

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are handsome, hardy, profitable. Prize stock; low price; circular. ED. W. COLE & Co., Kenton, O.

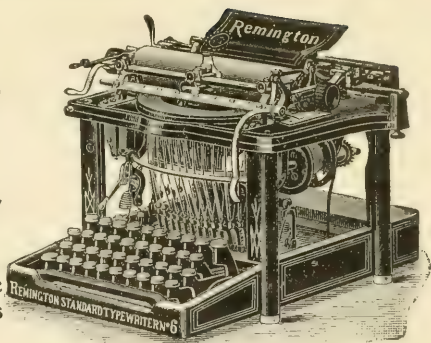
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and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts, if you mention Gleanings (reg. price, 50 cts). Inland Poultry Journal, Indianapolis, Indiana.

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Fruit Garden
200 Choice Strawberry Plants, 5 varieties.
34 Best Currants and Gooseberries, 7 varieties.
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This fine collection provides fresh fruit on your table from May 10th to Nov. 1st. Will plant about $\frac{1}{4}$ of an acre of ground. Why not interest your boys and girls in profitable horticulture? It is worth many times its cost. Our beautiful free catalog tells about it.
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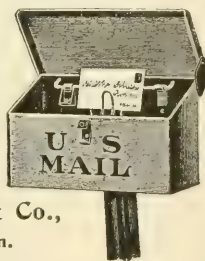


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Mail Box Tests.

Tender-hearted men should not serve on the committee. Each member should be furnished with a heavy club and a dose of nerve tonic. Before knocking the samples all over the hall, instruct janitors where to ship the remains of those that fall. If there is more than one survivor, it is a sign you are not hard hitters.

Write to-day for description and prices.



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Choicest new and staple varieties, by mail or express; guaranteed to arrive in perfect condition. We refer to many thousands of satisfied patrons during our 25 years as strawberry culturists. Our 1902 catalog contains valuable information and tells about 47 choice varieties. It is authority on the subject. FREE. Write for it to-day.

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Page Woven Wire Fence Co., Box S, Adrian, Michigan.

Potatoes for Sale.

Sir Walter Raleigh seed potatoes. Choice and true to name. \$1.00 per bushel, F. O. B. Charles Vanderbilt, of the New York Peerless Farm, Lyons, New York.

!! WHITE LEGHORNS !!

Single comb; stock large and fine; Satisfaction guaranteed. Pekin ducks. Eggs, \$1.50 per 13. Address W. H. GIFFORD, 151 Franklin St., Auburn, N. Y.

Do you want an incubator? See advertisement of Sure Hatch Incubator Company, on page 259.

I have bought a new job-press—as good a press as money can buy. It has all of the latest improvements and attachments that enable the printer to do the BEST work, and do it QUICKLY. It has a throw-off, depressible grippers, double revolving ink-disc, etc. It has three inking rollers that pass over the type twice between each impression, thus securing a perfect distribution of the ink, and a thorough inking of the type.

I have also bought a series of eight sizes of a new style of type—Engravers' Gothic—designed especially for use in printing fine stationery; and, to show what nice work I can do, I will furnish 100 sheets of the finest commercial note-heads, and 100 of the finest white-wove, high-cut, XXX envelopes, all printed with your name, business, and address, and send them, postage paid, for only \$1.25! The ink used will be photo-brown, which gives a much richer effect than the ordinary black. This batch of stationery, and the Bee-keepers' Review one year, for only \$2.00. The stationery, the Review, and a queen of the Superior Stock for only \$3.00; queen alone, \$1.50.

Prices on larger quantities of stationery, or on labels, cards, catalogs, or other kinds of printing, will be given upon application. I shall be glad to correspond with any one wishing fine work done in two or more colors, or on tinted or colored stock.

W. Z. Hutchinson, Flint, Michigan.

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It will tell you of more glorious fields in the counties south of Uvalde, superior to and more abundant in honey-yielding flora, promising to be one of the greatest honey-producing sections in the world. With flowing wells, and the planting of fields of alfalfa in addition to the fine natural resources there already. Its editor will tell about his extended trip through this wonderful land.

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From imported and home-bred mothers, by up-to-date methods. Tested, \$2.00 Untested, \$1.00; six, \$5.00; twelve, \$9.00. Full colony, \$6.00; three-frame, \$2.00; two-frame, \$1.50; add the price of queen. Discount on large orders. Write for circular.

Rufus Christian, : Meldrim, Georgia.

To make cows pay, use Sharples Cream Separators. Book "Business Dairying" & cat. 288 free. W. Chester, Pa.

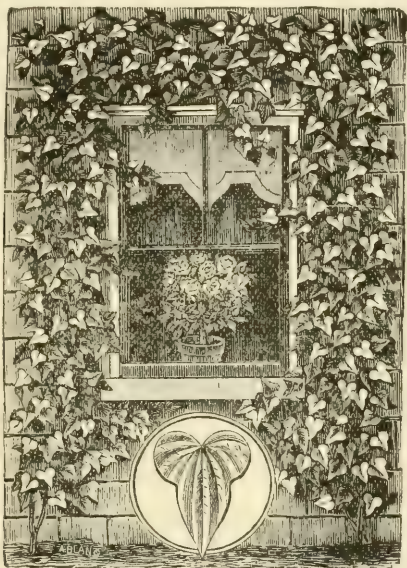
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Beautiful Leaves, Dainty Flowers, Exquisite Perfume.

The Cinnamon Vine, from the Oriental land, is one of the most charming of climbers, and will quickly surround your arbor, window, or veranda with a wonderful profusion of vines covered with handsome, glossy, heart-shaped leaves and sweet-scented flowers, making it a perfect bower of beauty. PERFECTLY HARDY—thriving everywhere, and once planted will grow for many years, and be a source of constant delight to the possessor. The vines often run 25 to 40 feet, and when trained over and about a window or veranda are universally admired, while their many clusters of delicate, unique white flowers send out an amount of delicious fragrance that is as truly wonderful as it is indescribable.



Beautiful, Hardy, Entrancingly Fragrant.
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Every one should plant these lovely vines. No home is complete without them. They stand the hardest winter without injury, and burst forth in all their marvelous splendor very early in the spring—as fine a climber as any lover of beautiful flowers can wish.

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BE SURE TO READ THESE TESTIMONIALS.

Lydia and M. J. Clarkson, Authors of "Art Studies," write:—No vine ever gave us so much continued pleasure. The growth is truly phenomenal. Its handsome foliage and fragrant blossoms commend it to every lover of flowers. If its merits were more widely known you would be overwhelmed with orders.

Mrs. C. Hensley, Barnard, Ind., writes:—The Cinnamon Vines you sent me grew 30 feet last year, and were the talk and wonder of the neighborhood.

From the Gentlewoman Magazine, New York:—The Cinnamon Vine—new from China—will thrive everywhere, and when once established will grow forever. Its fragrance is as truly wonderful as the beauty of the vine itself. The roots recently sold for \$10.00 each.

S. Wilson, Pa., writes:—The Cinnamon Vine blossoms as freely in the house as outdoors, and will fill a room with a delightful fragrance in the cold and dreary month.

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Prices of Cinnamon-Vine Roots, Postpaid

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I am the largest grower of Cinnamon Vines in the world, and offer strong roots to GLEANINGS readers at a wonderful bargain. The valuable Premiums, Novelties, and Extras given with every order (to introduce) are worth more than the entire cost.

2	Strong Roots,	2	Packets Choice Novelties and Catalog,	10c.
6	"	4	"	25c.
12	"	6	"	50c.
22	"	8	" and Illus. Home Magazine, 1 year,	\$1.00,
64	"	14	and elegant guarant'd Watch and Chain,	
			Improved Camera and Outfit, Acme Seed	
			Drill, or Solid Gold Fountain Pen (Your	
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Roots Without Premiums, \$2.50 per 100, prepaid.

Directions for planting accompany the roots. Everything carefully packed and sent prepaid. Safe arrival and satisfaction guaranteed. Club Agents wanted at every post-office. An easy way to get money or useful premiums. Colored plate of the vines with every order. Also CATALOG OF BARGAINS—from a farmer's son—A Seedsman for 25 years. Remit by money-order, cash, or stamps. Be sure and mention GLEANINGS.

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money. 48 years. 44 green-houses. 1000 acres.

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It is a fact that Salzer's vegetable and flower seeds are found in more gardens and on more farms than any other in America. There is reason for this. We own and operate over 500 acres for the production of our choice seeds. In order to induce you to try them we make the following unprecedented offer:

For 16 Cents Postpaid

20 kinds of rarest luscious radishes,
12 magnificent earliest melons,
16 sorts of glorious tomatoes,
23 peerless lettuce varieties,
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65 gorgeously beautiful flower seeds,

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This Marvelous Extra Early Potato originated by **HARRY N. HAMMOND SEED CO. Ltd**
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Largest growers of seed potatoes in America. 30 best varieties. Northern Grown always best. Blight proof, enormous yields, highest quality. Lowest price for lb., bbl., or carload. Elegant 100-page Bargain Seed Catalogue **FREE**. Write for it today.

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Belgiano Famed Prosperity Potato

Produced this year 600 bushels per acre.

Very hardy and free from scab or rot.

Very early, fast grower, good yield-

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tubers of excellent

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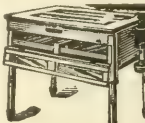
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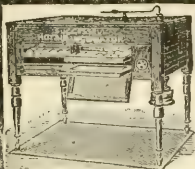
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Get an incubator that they can run; one that will do good work from the start and last for years. The **Sure Hatch** is made of California red wood, with 12oz. cold rolled copper tank, Hydro-Safety Lamp, Climax Safety boiler and Corrugated Water regulator. Send for our big free catalog. It gives actual photographs of hundreds who are making money with the **Sure Hatch Incubator**. Our Common Sense Brooder is the best. Send now.

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The Petaluma Incubator and Brooder too. Perfect regulation of heat, air, moisture. Hatches every fertile egg. Write for free catalogue. Address nearest office.

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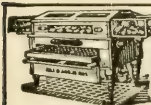
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This means that we ship anywhere our **60 Egg Copper Tank "All Right" Incubator** on **FORTY DAYS FREE TRIAL** and charge \$8.00 for it only when the customer is satisfied. Absolutely the best 60 egg machine on the market at any price. Send for our free poultry book, "All Right."

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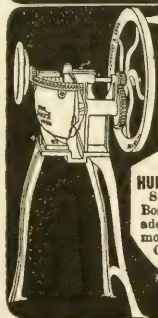
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because they need animal food. Feed cut bone and get eggs when eggs are eggs. The

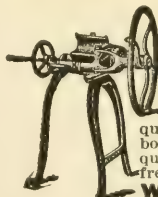
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Green Bone and Vegetable Cutter

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It runs easily because it has ball bearings. It cuts clean, quickly and perfectly. Makes a fine bone shaving such as chickens require. Before you buy send for free catalogue No. 39.

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It tells how to increase the egg yield. The Dandy, the easiest turning of all bone cutters, is sold direct on 30 days' trial. Price, \$5 up.

Handsome Book Free.

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Box 54, Erie, Pa.



Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your advt in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell 120 stands of bees; 80 stands to lease. J. B. SUMMERS, Berthoud, Colorado.

WANTED.—To sell Early Ohio, Queen of the Valley, and Carman No. 3 seed potatoes. A. V. TOBIAS, Covington, O.

WANTED.—To exchange for cash, beeswax, or offers, 1 12-in. and 2 6-in. Root foundation-mills. M. H. HUNT & SON, Bell Branch, Mich.

WANTED.—Choice clean worker brood-combs, old-style Simplicity form preferred. L. H. ROBEY, Worthington, W. Va.

WANTED.—To exchange Dadant uncapping-cans, Root's No. 5 extractor, and other supplies, for honey or wax. O. H. HYATT, Shenandoah, Iowa.

WANTED.—To furnish best strains Barred Plymouth Rocks, and eggs. Eggs, \$1.00 for 13; 100, \$5.00. Fertility guaranteed. CHAMBERLIN HILL POULTRY FARM, Jordan, N. Y.

WANTED.—To exchange the superior stock of red-clover Italian queens for empty worker combs in Hoffman frames. PRESTON STORE & PRODUCE CO., Dority, W. Va.

WANTED.—To sell or exchange gasoline-engines for all purposes—stationary, marine, bicycle, etc.; want machinery of all kinds. Robert B. Gedye, LaSalle, Ill.

WANTED.—To sell Rocky Ford cantaloupe seed. Seed of these famous melons postpaid, 40 cts. per pound. Choice selected stock. H. F. HAGEN, Rocky Ford, Colorado.

WANTED.—To know who has 200 colonies of bees to sell cheap; also what young man would like to serve an apprenticeship with Quirin the queen-breeder. H. G. QUIRIN, Parkertown, O.

WANTED.—To exchange a stock-farm in Oklahoma, for land and bees in a good bee locality further east. J. FOLIART, Bostick, Okla. Ter.

WANTED.—An up-to-date apiarist who can manage large apiaries for comb or extracted honey. A home, steady work, and good wages for an agreeable man. Single man who is a S. S. and C. E. worker preferred. L. B. BELL, Camp Verde, Arizona.

WANTED.—To dispose of basswood-trees from one to ten feet, taken from the forest. Price 2 to 10 cts. each. W. WILES, R. F. D. No. 4, Medina, O.

WANTED.—To exchange New Cumberland black-raspberry plants (Cuthbert), Fay's Currants, blackberry (Snyder, Taylor, Western Triumph), for beeswax at 30c per lb., or cash. Wanted, old comb and slumgum. A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—One or more young men to work on a ranch. No swearers, drinkers, or cigaret-smokers need apply. Any one who wants to come West to grow up with the country, or who wants to come on account of health, asthma, or lung trouble, I would like to hear from, stating age, qualifications, and wages wanted. W. A. KING, Ignacio, Colo.

WANTED.—To exchange Japanese buckwheat, raised year 1901, for colonies of bees. Address box 243, Xenia, Greene Co., Ohio.

WANTED.—The addresses of a few growers of good apples as near as possible to Southern Minnesota; also of bee keepers about Tucson or South-eastern Arizona. J. B. WIEMILLER, Pineridge, Cal.

WANTED.—To exchange Acme combined scroll and circular buzz-saw; foot and hand power; made by Seneca Falls Co.; almost new; for honey bees, or offers. JNO. NEBEL & SON, High Hill, Mo.

WANTED.—To buy a few hundred extracting combs in Hoffman or L. frames. F. W. MANLEY, Berkshire, Sanilac Co., Mich.

WANTED.—Position, by young man of 21, to assist in apary; temperate h-bits; good reference. H. M. ADSIT, Vischers Ferry, N. Y.

WANTED.—To sell, or exchange for queens or bees, strawberry and raspberry plants of all leading varieties. JOHN D. ANTRIM, Burlington, N. J.

WANTED.—To exchange five pedigreed Belgian hares, for beeswax, incubator, or any thing useful in apary. MRS. A. F. PROPER, 639 East Votaw St., Portland, Indiana.

WANTED.—A buyer for three lots in Seattle, Wash. Nicely located. Price \$240 each. Cheap at this price. Address A. O. YOUNG, Montrose, Mo.

WANTED. An industrious man of good habits, to work with bees, with a little farm work mixed in. One with some experience with bees; also one who can run machinery for our own hive-work; etc., and can fit saws preferred. Bees and appliances all first class—200 colonies or more. The new Heddon divisible brood-chamber hive and system are used. I will pay as good wage as helper can earn. Position open Apr. 1, '02. References given and required. Address O. H. TOWNSEND, R. D. No. 2, Otsego, Mich.

WANTED.—Queen bees and strawberry plants in exchange for Silver Wyandotte eggs or fancy pigeons. LOUIS A. OSBORNE, Sedalia, Mo.

WANTED.—Correspondence with owner village acre sub-division selling on cash contract to actual residents. C. S. DOWNER, Box 544, South Haven, Mich.

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from the best strains of either three or five banded Italians. Untested, 85 cts. each; tested, \$1.25 each; breeders, \$3.00; 1-frame nuclei with warranted queen, \$2.00; 2-frame, \$3.00. Bees and queens ready to mail any day. My bees are selected from the very best strains that money can buy. I make a specialty of queen-rearing and fill orders promptly. I insure safe arrival of queens. This is a postal money-order office. Remit with money-order to

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RUBBER STAMPS. Send us 25 cts. for year's sub to our 16-p. monthly journal and we will mail you FREE as a premium a two-line Rubber Stamp, or two one-line Stamps, to print any wording you want. THE FARM AND POULTRY NEWS, Middlesboro, Ky.

FLOWERS.—Strong plants from 2½-inch pots. The famous \$30,000 queen of all carnations, Mrs. Thos. W. Lawson, 15c; 2 25c. Verbenas, 4c; 35c doz. Pansies, 25c doz. Boston ferns, 8c each. Roses, monthly bloomers, assorted colors, 10c each; 3 for 25c; prepaid. FRANK DANLEY, Macomb, Illinois.

WANTED.—Comb honey in any quantity. Please advise what you have to offer. EVANS & TURNER, Town St., Cor. 4th, Columbus, Ohio.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO., 199 South Water St., Chicago, Ill.

WANTED.—Extracted honey, either large or small lots; parties having same to offer, send samples, and best prices delivered, Cincinnati, O. We pay cash on delivery. THE FRED W. MUTH CO., Front and Walnut Sts., Cincinnati, O.

Yes, Sir!

The MUTH'S SPECIAL Dovetail hive is a CRACK-ERJACK. COVER AND BOTTOM are absolutely warp-proof. We know because we are practical. Our illustrated catalog explains it all. You can have one by asking. Not a hive left over from last season. We sell the finest supplies at manufacturers' prices. **STANDARD BRED QUEENS.** None better than our Buckeye Strain of 3-handers and Muth's Strain Golden Italians. 75c each; 6 for \$4.00. Safe arrival guaranteed.

The Fred W. Muth Co., Front and Walnut, Cincinnati, O.

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Does blood tell in other stock? Give your bees a chance. Stock used for breeding the queens offered—not from a sport, but my pick out of an apiary giving last season an average yield as follows:

Honey Gathered.

102 lbs. extracted and 68 lbs. comb honey per colony besides increase and stores for winter.

Quality of Comb Honey Produced.

"Man! It would dazzle you."—Wm. McEvoy, Ontario Government Inspector of Apiaries.

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Up to the present, January 30, I never found these bees to show the least indication of unrest—always perfectly quiet. They are wintering perfectly.—Frank T. Adams, Brantford, Canada.

General Commendation.

Out of those queens you sent me I have produced the best race or strain of bees I ever owned. Remember that is saying a lot, as I have tried every breed imported to this country. The bees winter better, build up, and stand cold chilly winds in spring better, and are more suitable than any bees I ever owned. For the season they gave me about double the honey the pure Italians did, and more increase. Glad you are going into the queen business, and are going to join our ranks again. We are much in want of a few men like you. C. W. Post, Ex president Ontario Beekeepers' Association (owns 365 colonies).

S. T. Pettit, Canada's most successful comb-honey producer and bee-keeper, says: "The blood in my apiary is largely the progeny of queens sent by you, and they are grand bees."

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They are duty free to the United States. Tested, \$2.00 each; \$10.00 for 6; \$18.00 per dozen. Untested until July 1st, \$1.25 each; \$7.00 for 6; or \$12.00 per dozen. Same after July 1st, \$1.00 each; \$5.50 for 6; or \$10.00 per dozen. Larger quantities, prices on application. Postage stamps taken for fractions of a dollar. To be fair to every one, no selected tested queens are offered. Every one has the same chance. The above queens are bred from a careful selection of Italians and Carniolans. Pure Italian and Carniolan queens same price. Price of full colonies on application. Orders booked as received, and filled as quickly as possible. Order early. Address

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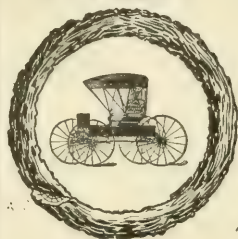
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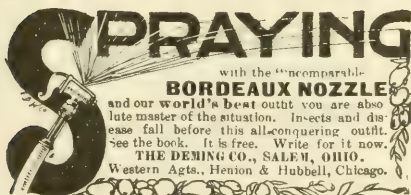
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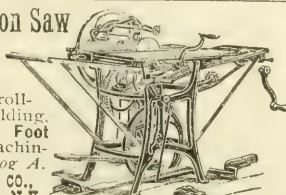
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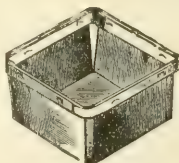
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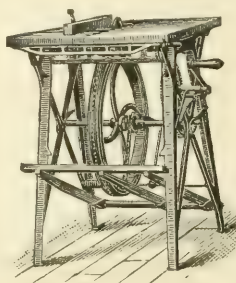
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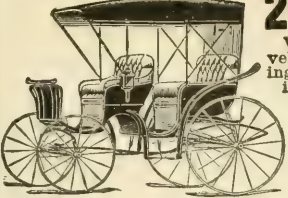
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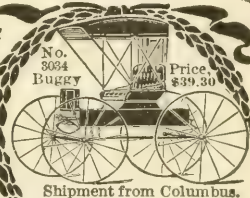


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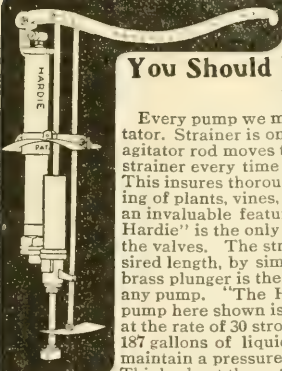
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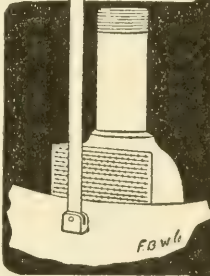
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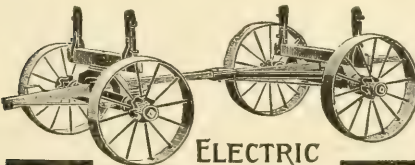
A FEW REASONS WHY

You Should Buy "The Hardie" Spray Pump in Preference to One of Any Other Make.

Every pump we make is supplied with our strainer and agitator. Strainer is on side of extreme end of suction pipe. The agitator rod moves the agitator up and down in front of the strainer every time the pump handle is worked. See cuts. This insures thorough mixing and prevents burning or scalding of plants, vines, etc., from heavy deposits of poison. It is an invaluable feature in painting and whitewashing. "The Hardie" is the only pump that requires no wrench to get at the valves. The stroke may be instantly adjusted to any desired length, by simply changing a pin in the handle. Our brass plunger is the most simple, durable and serviceable on any pump. "The Hardie" is a large capacity pump. The pump here shown is our No. 7. When this pump is worked at the rate of 30 strokes per minute it will reduce to fine spray 187 gallons of liquid per hour. All the "Hardie's" easily maintain a pressure of 100 pounds with two nozzles open. Think about these things and then send for our free catalog.



THE HARDIE SPRAY PUMP MFG. CO.,
63 Larned Street, Detroit, Michigan.



ELECTRIC Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

ELECTRIC WHEEL CO., BOX 95, QUINCY, ILL.

Beat the Bugs

Such things as Codling Moth, Curculio, Green Aphid, Scaly Bark, San Jose Scale, Blight, Etc., can only be defeated by frequent and persistent spraying. *The*

Spramotor

has proven to be the best all round spraying outfit on the market. Was awarded Gold Medal at Pan-American Exhibition, and winner of the Canadian Government Spraying Contest. We mail free, booklet "A Gold Mine on Your Farm." Ask for it. Your dealer will sell you the Spramotor, or you can get it from us direct.

SPRAMOTOR CO.,
Buffalo, N. Y.
London, Can.



EIGHTEEN-INCH GEM PLANER.

We have for sale an 18-inch Gem planer, second-hand, which we are replacing with a heavier machine. We offer it for \$10 cash. Where a party wants a tool at a low price, which will do good work, this is a bargain.

HONEY MARKET.

We have just received another large car of extracted honey from California, and shall be pleased to hear from those in need of choice honey for bottling. This consists of white and light amber.

We have been moving off our stock of comb honey quite freely lately, but still have a good stock, and solicit inquiry from those in need. Now that the weather has moderated it can be shipped safely.

MAPLE SUGAR AND SYRUP.

The season for these delicious sweets of the sugar maple is here, and from present indications it promises to be short. We expect to supply our customers as usual. It is rather early yet to fix a definite price, but we shall doubtless be able to furnish it at the usual price, \$1.00 per gallon for choice syrup, and 10 cts. per lb. for best grade of sugar. We shall be pleased to hear from those interested.

FAVORITE FAMILY SCALES.

In our catalog for this year there occurs a misprint on the price of the 24-lb. Favorite family scales. The catalog reads \$2.75 each, when it should be \$1.75, the same as the 12-lb. They are the cheapest scale we know of for the capacity, as well as the most convenient, and we are selling this year for \$2.25 one of the 48-lb. capacity. The divisions on the dial of this being closer, it will not be as handy for weighing small amounts as the one of 12 lbs. capacity.

BEESWAX WANTED.

The market for beeswax continues firm, and prices are ruling a little higher. We advance the price we pay to 29 cents cash, 31 cents trade. We hope we shall not have to advance any further. If we do we shall have to advance also the price of foundation. If you have any wax to sell or any old combs to make any, let us have an early shipment. As soon as we secure enough for this season's needs we will make the price down again. Too often in the past, parties have held their wax a little too long to secure the best price.

BUSINESS BOOMING.

We are well nigh swamped with orders. Two months ago we were about 20 cars behind, but we kept gaining till toward the last of February, when we had only about 12 ahead of us. Since then they have come in again in such numbers that, at this writing, we are 16 cars behind. We are running our factory 11 hours a day, and our shipping department still longer, and doing our utmost to keep pace with the orders, and catch up a little closer. Prospects are promising for a good season, and it behooves the fore-hand to be prepared in time.

Kind Words from our Customers.

Please do not mark my name with a D (discontinue), for I would rather you would use a C (continue). So, for a renewal, here is my dollar; and now for GLEANINGS, just hear me holler. Three cheers! Hip, hip, hip, hurrah for GLEANINGS! LEWIS HOCKETT.
Fairmont, Ind., Jan. 22.

To The A. I. Root Co., San Antonio, Texas:—I received the goods all right. I am certainly well pleased with them. They are the best hives I ever saw. Please accept my thanks for the nice way they are packed. J. W. WOLF.

Mineral, Texas, Feb. 15.

THE NEW MATTITUCK ERFURT CAULIFLOWER (IMPROVED SNOWBALL) SEED.

Inclosed find \$1.75, for which please send me by mail one ounce of the Mattituck Erfurt cauliflower seed. I got an ounce last year, and it was by long odds the best I ever grew. JOHN G. GRAY.

St. Catharines, Ont., Dec. 21.

Mr. A. I. Root:—In reading your Home paper last evening in regard to the Biddle affair, it occurred to me that, if you would pick out the cream of your Home papers, and put them in book form, I should be pleased to get one or more and have them placed in our libraries. I lent your Adam and Eve story to my brother Jacob (of happy memory, Judge of Haliburton), and he gave it to a man who came to him for a divorce, and who, after reading it, saw his error and returned the journal to my brother, with many thanks, as it had completely reconciled him and his wife to each other, at least, and may we not hope to God also? Little Britain, Can., Feb. 28. F. WHITESIDE.

Mr. Root:—Our Homes is very interesting to me. We have been in Colorado 15 years, and this year is our first with the journal here. We were from Ohio originally, and husband was a great bee-man—a regular subscriber to your journal, and got many supplies from you some 25 years ago. I read the Home papers when Huber was a cute little fellow, and when Blue Eyes was so often spoken of; and to have the journal again is like a drink of water to a thirsty traveler. Husband, of course, was more interested in the bee business. H. S. Shull Wellsville, Ohio, was our old home address. I want to tell you why the journal which came to day was so interesting. The reading about the little home in the woods, the companion ship of 40 years of married life (which is our length of time together), all appealed to me forcibly. You will always have interested readers of the Home papers, as they are written differently from any thing found elsewhere. You write honestly, and plain-spoken, without fear or favor to any one.

MR. AND MRS. H. S. SHULL.

La Junta, Colo., Nov. 20.

Mr. A. I. Root:—It was your article in a back number of GLEANINGS where you spoke of dear Mrs. Root wishing to do her "own work." Yes, it was that picture of true home life which has made me a humble subscriber to GLEANINGS. I thought you were talking to my wife all the time. She, too, won't have a hired girl in the house, although we are both 75.

You are tolerable on "bees and horses," but you don't touch the living spot till you write out your everyday experiences; and after reading them I could almost run to Medina and throw my arms around you, and wish I was $\frac{1}{4}$ as good a Christian.

Waterbury, Ct., Dec. 30.

B. S. HOTCHKISS.

Why, dear friend H., you do not realize how extravagant you are in your talk especially for a man 75 years old. You do not know what a predicament you would be in if you were " $\frac{1}{4}$ " as good a Christian as my poor self. If you should talk with my next-door neighbors, especially a certain one who does not fall in with my erratic ways, you might change your mind. May God bless you and your wife. I wish you could come and make us a visit when we get up to our "cabin in the woods" again.

As we are snowed in up on these mountains I thought I would write you. I have been thinking for almost a year that I would do so. When our boy wanted a dollar to send to you for GLEANINGS I said, "I guess father would not want you to spend money in such a foolish way." As his father is a Christian, he wants his children brought up in the good way; but the boy said, "There is as good reading in the books as you will hear preached," and so I said I would like to see some of them, as I had never read anything in any advertising book yet that was as good as what you would hear at church. So the boy brought me three of them that some friend had let him take, and I saw at once that they would be a help to him, and gave him the dollar. This was one year ago, and *this* year I gave him another dollar for it. I think the lesson that you have in about the Biddle brothers pays for the book this year.

I don't believe in secret societies, and I hope that the Lord Jesus Christ will keep me so that I never will want to belong to any. I have been a Christian for ten years, and I love to read God's word; and, so far, in reading your journal I have been strengthened. I often think of your text, "And the Lord God said unto

the woman. What is this that thou hast done? And the woman said, The serpent beguiled me, and I did eat."

You will find almost every time any thing happens that a woman is about, somewhere; although I am of that sex I don't want to do as I have seen and known some to do.

MRS. THEO. ALLEN.

Prospect, Ct., Feb. 24.

Mr. Root.—I have at last received the hives you so kindly donated to my mission. I have not yet been able to get them over the mountains, but I hope to make you a good report in the course of time. It was most kind of you, making me this donation. I hope there will be good results from it.

In moving forward to this new country, in my missionary life I have struck quite a new manner of life among the natives. It is a new mine from which to dig jewels for the Lord's crown, and promises to be most fruitful. We have now occupied some over 20 villages, and there is a much larger call for help from the heathen. We meet with many obstacles, and have already our first martyr, a grand man saved by grace, and assassinated because of his new life. I have been now over 36 years in this work, separated from my family—my "Blue Eyes," now, for 12 years, for this work's sake; but it is the very work of God. How deeply I sympathize with you in your Home Papers. They are admirable, and of God. I am most thankful God ever led me to know A. I. Root.

A. BUNKER.

Loikaw (Foungkaw), Oct. 31.

ONLY 20 LEFT.

We have left some of those slightly damaged copies of Prof. Cook's "Bee-keeper's Guide" that went through our fire a year ago. The reading matter is all right—only the cloth covers are somewhat damaged. Price, to close out, 60c a copy, by mail; or, with weekly *American Bee Journal* a year, both for only \$1.40. Regular price of the book alone is \$1.25. Big bargain where you get both book and Journal (52 copies) for \$1.40. Better order quick if you want book on either these low offers. Now is the time to begin to read the *American Bee Journal*. It will continue to be a great paper in 1902. And it comes every week.

We are headquarters in Chicago for Root's Bee-keepers' Supplies. Catalog, and sample of *American Bee Journal* free.

GEORGE W. YORK & CO.,

144, 146 Erie Street, Chicago, Illinois.

**Minnesota Bee-keepers' Supply Mfg. Co.,
Manufacturers of
Bee-hives, Sections, Shipping-cases, and
Everything Used by Bee-keepers.**

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

Minnesota Bee-keepers' Supply Mfg. Co.,
Nicollet Island Power Building, Minneapolis, Minn.

MICHIGAN

HEADQUARTERS FOR

**G. B. Lewis Co.'s
Bee-keepers' Supplies,
Dadant's Foundation.**

Be sure to send us your list and get our prices before ordering elsewhere. DISCOUNTS on early orders. Send for our 48-page catalog.

L. C. Woodman, Grand Rapids, Mich.

Sweet Potatoes—Choice Seed.

SEND FOR PRICE LIST.

L. H. Mahan, Box 143, Terre Haute, Ind.



FOR SALE!

Cash, or exchange for comb and extracted clover or aalfa honey, a physician's phaeton cart, used 4 mos.; also perfect harness made especially for cart; used with shafts or pole; absolutely no

horse motion, and the most perfect riding cart made. For fuller particulars, DR. J. B. ENOS, Charleroi, Pa.

THE BEST PLACE

to send orders for queens when you want golden stock that is satisfactory (bred for honey-gathering for nearly 30 years) is to

GEORGE J. VANDE VORD, Daytona, Fla.

He will treat you right, and is using extreme care in raising fine large queens. A breeder of Root's red-clover strain. Only superior drones in or near both yards. The best mailing and introducing cages made. An extra choice Doolittle golden breeder. Untested, \$1.00 each; three for \$2.25; tested, \$1.25.

Every Reader of Gleanings

is especially invited to accept the offer of Cinnamon Vines on page 257. Also to get up clubs. Nothing is easier. Everybody wants them. You can quickly earn Silver Watches, Cameras, Dress Patterns, Seed Drills, Gold Fountain Pens, or a big pocketful of "pin-money" far easier than you would imagine. Try it. Thousands have done it and are delighted. Read every word of the Special Offer to GLEANINGS Readers (made solely to introduce), and begin your club at once and your success will be certain.

\$1.00 Chicago to St. Paul or Minneapolis

for double berth in tourist sleeping-cars of the Chicago, Milwaukee & St. Paul Railway each Tuesday and Friday during March and April, 1902, on Train No. 1 leaving Chicago at 6:30 p. m. For further information apply to the nearest coupon ticket agent, or address F. A. Miller, General Passenger Agent, Chicago.

FOR SALE.—Will sell cheap, one 10 h. p. engine with upright boiler all complete.

J. W. BITTENBENDER, Knoxville, Iowa.

QUEENS, QUEENS

Old Standbys.—The A. I. Root Co., to whom we have sold queens for many years, wrote us last May, thus: "Are you running low on queens? We hope not, as you seem to be our standbys. Send us 24 per week instead of 12, till further orders."

Beat Any Thing He ever Saw.—The Cyprian queens you sent me last year beat any thing I ever saw rearing brood and filling their hives with honey.—J. Nielson, Huntington, Utah, Sept. 4, 1901.

Is Great.—The nucleus you sent me last fall is great—the finest queen that ever crossed the plains. Please duplicate her this time. Mr. Jordan says the nucleus you sent him cast two fine swarms.—G. R. Warren, Fruitvale, Cal., May 12, 1901.

\$50 Queens.—My nice queen that you sent me, and I put in a hive with a handful of bees on the 6th day of last June, has now nearly filled her 30-lb. super for the third time. No man's \$50.00 bill could take her. Please send me another one like her as soon as possible, and keep a dozen ready for me like her for the 20th of April next, and I will make you a nice present.—M. Brown, Station A, Little Rock, Ark.

We breed Italians, Cyprians, Holylands, Carniolans, and Albinoes, in separate yards, 5 to 20 miles apart. Prompt service. Safe arrival guaranteed. Bees by the point, nucleus, full colony, or by the carload.

Prices: Tested, \$1.50 each; \$8.00 for six; \$15.00 per dozen. Untested, February, March, April, May, \$1.00 each; \$5.00 for six; \$9.00 per dozen. Fine breeders, \$5.00 each. Send for our catalog, free by mail; tells how to rear queens and how to keep bees for profit.

Agents for Dadant's Foundation and *Gleanings*. Premiums given. Don't fail to get our printed matter. It's ALL free. Bee-supplies of all kinds.

The Jennie Atchley Co., Beeville, Tex.

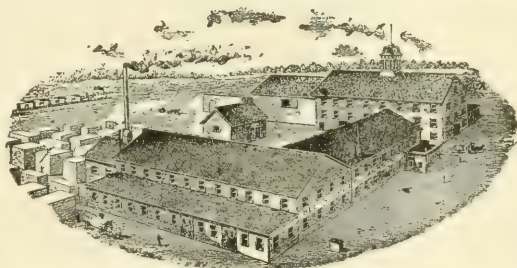
Now Ready!

Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,

Wetumpka, Elmore Co., Ala.



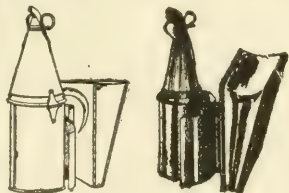
Kretschmer Mfg. Co., Box 60, Red Oak, Ia.

BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiaary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

— AGENCIES —

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Ia.
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used.

Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy-White," "No. 1 Dark," etc.

CITY MARKETS.

BOSTON.—The demand for comb honey remains good. Market ranges as follows: Fancy, 15¢@16¢; A No. 1, 14¢@15¢; No. 1, 13¢@14¢; honey in glass-front cases about 1¢ less. California light amber, extracted, 7¢@7½¢; Florida honey in barrels, 6¢@6½¢.

BLAKE, SCOTT & LEE,
March 20. 31, 33 Commercial St., Boston, Mass.

CHICAGO.—Continued depression in the trade owing to light output on the part of retailers and the desire on the part of those having stock on hand to dispose of it. The past two weeks have noted a further decline in price of comb honey, with the exception of basswood, which is scarce, and wanted at two to three cents above any of the other white grades and now brings 14¢@15¢; alfalfa and other fair white, 10¢@13¢; ambers, 8¢@10¢. White extracted dull at 5½¢@6½¢; ambers, 5½¢@5¾¢; Southern and dark, 5¢@5½¢. Beeswax scarce, and wanted at 30¢.

R. A. BURNETT & Co.,
March 19. 199 South Water St., Chicago, Ill.

ALBANY.—Honey market bare of comb here, and none selling less than 15¢. Extracted dark most in demand at 9½¢. Beeswax wanted at 29¢@30¢.

MACDOUGAL & Co.,
March 13. 380 Broadway, Albany, N. Y.

CINCINNATI.—The general tone of the honey market is lower. Water-white comb honey sells from 14¢@14½¢, and is hard to obtain; extra fancy, 15¢. Extracted has weakened a little, and sells from 5¢@5½¢; fancy, 6¢@6½¢.

C. H. W. WEBER,
March 19. 2146 Central Ave., Cincinnati, Ohio.

DENVER.—Demand for strictly No. 1 comb honey is fairly good; off-grade and No. 2 selling slow, and prices on these have to be shaded to effect sales. No. 1 white comb honey, \$2.65 to \$2.85 per case of 24 sections; No. 2, \$2.25 to \$2.50. Extracted, 7 to 7½¢ per lb. Beeswax, 24 to 26¢.

COLORADO HONEY-PRODUCERS' ASS'N.,
Mar. 20. 1440 Market St., Denver, Col.

SCHENECTADY.—There is but little comb honey remaining on our market, and that is white. We quote fancy 15¢; fair to good, 13¢@14¢. There is quite a little demand for extracted light—light selling at 6¢@6½¢; dark, 5½¢@6¢.

CHAS. MCCULLOCH,
March 19. 1 Eagle St., Schenectady, N. Y.

MILWAUKEE.—The condition of this market on honey remains about the same as when last reported. The receipts have been fair. The stock is not large, yet sales seem to drag, especially on the extracted. The best comb honey is in fair request, while the supply is small. We now quote fancy 1-lb. sections, 14¢@15¢; No. 1, 13¢@14¢; off grades, nominal. Extracted, in barrels, kegs, pails, and cans, 7¢@8¢; amber, 6¢@7¢. Beeswax, 26¢@28¢.

A. V. BISHOP & Co.,
March 19. 119 Buffalo St., Milwaukee, Wis.

SAN FRANCISCO.—Comb honey, 10¢@12¢. Extracted, water white, 5½¢@6½¢; light amber, 4¢@5½¢; dark, 4¢@5¢.

March 13. E. H. SCHAEFFLE, Murphys, Calif.

WANTED.—Comb honey in any quantity. Please advise what you have to offer.

EVANS & TURNER,
Town St., Cor. 4th, Columbus, Ohio.

WANTED.—Comb and extracted honey. State price, kind, and quantity.

R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Extracted honey, either large or small lots; parties having same to offer, send samples, and best prices delivered, Cincinnati, O. We pay cash on delivery.

THE FRED W. MUTH Co.,
Front and Walnut Sts., Cincinnati, O.

WANTED.—Comb honey in Danzenbaker sections. We can use both white and amber.

THE A. I. ROOT Co., Medina, Ohio.

FOR SALE.—A quantity lot of well-ripened clover honey in 60-lb. cans.

B. WALKER, Clyde, Ill.

FOR SALE.—Whitest alfalfa honey, \$9.00; tinted, \$7.80, per case of two 60-lb. cans, net.

ARKANSAS VALLEY APIARIES, Las Animas, Col.

FOR SALE.—Two grades fine amber honey at 6 and 6½¢ respectively, and white honey at 7½¢ per lb., f. o. b. here. Sample free.

O. H. TOWNSEND, Otsego, Mich.

FOR SALE.—Fancy and No. 1 comb honey; about 2000 lbs. or more.

WM. MORRIS, Las Animas, Col.

FOR SALE.—Extracted honey, from alfalfa, at 7¢ per pound. Send for sample.

D. S. JENKINS, Las Animas, Col.

FOR SALE.—Clover and sweet-clover extracted honey at 7¢, in kegs and cans.

DR. C. L. PARKER
Sta. A, R. F. D., Syracuse, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere that they will have to offer.

SEAVEY & FLARSHEIM,
1318-1324 Union Avenue, Kansas City, Mo.



The "Triumph" Fish-hook.

Holds any species of fish.
The fish bites the middle hook.
The side hooks close down as he pulls.
The more he pulls the tighter he is held.
Is a combination of a fish-hook and a gaff.
Will catch any fish—minnow to cod.
For trolling, casting, deep-sea fishing.
Four sizes. State which is wanted.
Dozen, \$1; alike or assorted. Sample, 10¢.

F. J. Root, 90 W. Broadway, New York.

Lathe For Sale!

Foot or power; has a 6-foot bed; screw and gear cutting, and wood and steel turning attachments and tools. Of good make, in fine order, and a bargain at 1-3 cost. Tor. Poolittle solar wax-extractors (Root's make) in fair order, will last for years, at 75 cts. each. Also pulleys, shafting, and other tools and articles for sale. For lists and prices, please address W. J. FINCH, JR., - - CARLINVILLE, ILLINOIS.

Victor's Strain of Italian Bees Awarded the Diploma as Being the Best Bees at the Pan-American.

BUREAU OF AWARDS.

PAN-AMERICAN EXPOSITION,
BUFFALO, NEW YORK, U. S. A.
February 12, 1902.

Mr. W. O. Victor, Wharton, Texas.

Dear Sir:—I have the honor to advise you that a Diploma of Honorable Mention has been awarded to you for your exhibit of Italian bees at this Exposition.

Very respectfully, WM. I. BUCHANAN,
Director General.

Orel L. Hershiser Bought of Me an Untested Queen. This is what He Says of Her Colony:

"They are very industrious characteristically marked, and extremely gentle. It was a daily experience, and repeated many times daily, to go into the inclosure with interested visitors, at the Exposition, open the hive, full to overflowing with beautiful bees, the progeny of the queen you sent me, and handle them in the various manipulations of hunting out the queen; shaking the bees from the comb, as is done in extracting, showing the brood in all stages, etc., all without the use of a smoker or any thing else to quiet the bees, and I do not recollect that any one ever got a sting from any of them."

Of the bees I exhibited at the Pan-American, he says: "The nucleus you sent for exhibition and award was certainly very fine-looking bees, and, in my opinion, they deserve the award given them by the judges."

But Who is Mr. Hershiser?

See *Gleanings* of date of Feb'y 1, 1902, page 97. Send in your orders for queens, and in a short time, as Mr. Hershiser and hundreds of others are now doing, you, too, will be singing the praises of "Victor's Bees." Price lists on application.

W. O. VICTOR, Wharton, Tex.

Queen Specialist.

— You Need a —

Grace Queen-cell Compressor

Messrs. Giraud-Pabou & Sons, Le Landrau, France, say: "We are very successful with compressed cups. Box attachments have arrived." In January, Mr. Geo. J. Vande Vord, Daytona, Fla., ordered 200 shells, and on Feb. 28 said: "Please send 400 more immediately. I now find them to work all right." "A grand invention," say the Atchleys. Another has said, "Removable queen-cells are as valuable to the queen-raiser as removable combs are to the honey-producer."

Great, Fine Cells Secured Each Time.

Order a press and have it on hand. By post, \$2.00; with other goods, \$1.75. Shells, 1c—use them over and over. A 10-box queen-fertilizing attachment will mate several queens to the nucleus colony at cost of one. Send for circular of complete queen-rearing outfits. Golden-all-over queens, \$1. E. L. Pratt, Swarthmore Apiaries, Swarthmore, Pa.

THE BEST PLACE

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GLEANINGS IN **BEE CULTURE** A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS ILLUSTRATED SEMI-MONTHLY Published by THE A. B. COOT CO. \$1.00 PER YEAR © MEDINA, OHIO.

VOL. XXX

APR. 1, 1902

No. 7.



F. B. SIMPSON says in *Review* that inbreeding has done us remarkable service in improving our domestic animals, but only one man in a thousand succeeds with it, and that thousandth man in only one of a thousand cases. That's—let's see— $1000 \times 1000 = 1,000,000$ —one chance in a million—a rather black eye for inbreeding.

The *Lone Star Apiarist* says exposure of brood will start robbing quicker than the exposure of honey only. [I am inclined to think this is true. But, doctor, why didn't you offer an opinion? There is nothing in my experience that makes bees more ugly, and sting worse, than to give them a taste of mashed brood.—ED.]

I'VE ALWAYS HELD that, while the drones of an impurely mated queen might be affected by the mating, the effect was so slight that it was not worth considering. Now comes Prof. Cook, p. 238, and presents considerable proof that Dzierzon is entirely right in holding that the blood of the drone is not in the slightest degree affected by his mother's mating.

ONTARIO CO., N. Y., bee-keepers' convention thought what money our government expends in importing queen-bees from other lands might better be made use of otherwise.—*Amer. Bee Journal*. If my memory is in good repair, at one time some inhabitants of that region said things about me not the most complimentary just because I talked as they now talk.

FRANK B. WHITE Co., publishers of *Agricultural Advertising*, were unfortunate enough to admit in their columns the comb-honey slander. Now they have done the White thing, not only retracting, but sending to the host of agricultural papers a statement of the truth in such clear and concise terms that it stands a good chance of general publication. [Yes, indeed; the White Co. have done the *white* thing. Mr.

F. B. White himself is a gentleman who is particularly interested in bees and beekeepers, and he has gone not a little out of his way to help us offset the effect of the comb-honey lies.—ED.]

A CONTROVERSY is on, says the *Amer. Bee-keeper*, as to the proper pronunciation of "super." It says: "The man who pronounces it 'sooper' will probably find himself upon as safe ground as those who insist in perverting it into 'supper.'" Just so, Bro. Hill, but hardly safer, if both are errors. If "beauty" were pronounced "booty" by one man and "butty" by another, you would hardly denounce the last alone, but tell them they were both in error.

RAMBLER, don't you think you are blowing hot and cold in pretty rapid succession, p. 236? You first try to lull our fears lest a lower tariff may make lower prices for us, and in the next breath say Cuban comb honey is fine, and lots of it can be sold here. But we ought not to be selfish. It would be a great blessing to the country if honey were so cheap that it would take the place of half the 65 pounds of sugar annually used per capita, even if it drove us all into some other business.

THE EDITOR'S remark, page 232, reminds me that, years ago, with ten-frame hives and wide frames, I always put on 56 sections at the start, and I never had more satisfactory work. But I usually put a frame of brood above for a few days. [But at that time, doctor, the seasons were much better than now; in fact, I think you have so stated; or, to put the question in another way, would you—or, rather, do you—in actual practice put on two supers at a time rather than one? If not, why not?—ED.]

I AM SORRY to have misunderstood the work of a man to whom we are so much indebted as we are to Prof. Gillette, p. 233. Let me amend by saying, "One thing that seems settled is that *measurement* of tongue-reach is not settled by tongue-length." [But do you think Prof. Gillette will subscribe to your last statement? We consider Prof. Gillette as a man of marked ability, and we are indebted to him for his work on the matter of measuring tongues. Perhaps

his conclusions on some questions were not entirely correct; but he has given us the facts and figures so that we can draw our own conclusions if we like.—ED.]

I AM NOT "up" on the latest kinks in breeding, says Arthur C. Miller, p. 240. Please don't mention it publicly, A. C., but let me whisper in your ear that I have a larger fund of ignorance on the subject than you have yet dreamed of. But what makes me no longer on speaking terms with you is because all you fellows that are so "up" on the kinks—no, not all, I must count F. B. Simpson out—have spent so much time scolding the rest of us for ignorance, instead of using all your breath to instruct us.

A. C. MILLER seeks to impeach my witness, p. 240. He "Great Scotts" the idea of greater uniformity, with yields varying from 54 to 317. Does that detract from the force of the argument if the truth still remains that there is greater uniformity than before? But, go back to page 976 and read again. Mr. Doolittle distinctly says that the 317-pound stock was the only one of the four belonging to the stock that he has for 30 years been building up from selected freaks. Great Scott! what ails you, Arthur?

F. GREINER, p. 230, says a queenless colony can be kept building cells a long time if a comb of brood is given from time to time. In 1899 I kept a colony queenless ten weeks, and it did just as good cell-building at the last as at first. Brood and bees were all changed every ten days, except, of course, the field bees, and it was kept very strong. [According to our experience a little brood is necessary to keep the bees from getting discouraged. We make it a rule to pick out one or two colonies that show a special aptitude for building cells, and keep them at it, sometimes, during the whole season.—ED.]

MACHINE-SHOP BEES protest at 60°, page 227. No doubt that trouble was immediately corrected; for since that was written it has been 2° above zero here. But I am curious to know how much trouble there was when you opened up wide for all night. Was the roaring increased on admission of fresh air? and were they quiet next morning? [Just as soon as we could let in fresh air those bees quieted down, notwithstanding the temperature was still 60. This proves conclusively in my mind that bees can stand a much higher temperature providing they can get a good deal of fresh air. I can not quite understand why our experience should be so different from that of others on this point.—ED.]

THE IDEA that, sooner or later, all alfalfa for hay will be cut before bloom is a bit discouraging. One comfort remains: Say, it takes acres to produce seed enough for the fresh seeding needed. There will always be acres of bloom for the bees. Taking a broader view, whatever will be lost on alfalfa will help the white-clover mar-

ket. [No great loss without some small gain. I think the great reason why clover and basswood honey sells at a lower figure than it did years ago is because of the enormous quantities of alfalfa and sage honey produced in the West. It is true that more people are eating honey than formerly in proportion to the population. The increased number is not sufficient to offset the larger quantity produced.—ED.]

THE FAILURE of F. Greiner to get queens fertilized over a colony with a laying queen is about the same as my own. No trouble to have the young queens reared there, but when they should begin laying they turn up missing. Yet I did it once easily, and I believe that was the first-published case of rearing a young queen over a colony with a laying queen. To have combs preserved from worms, I piled four stories of them over a colony with a laying queen, and to make sure they would all be visited by the bees I put a frame of brood in the upper story—no excluder anywhere. Later, when I came to take them away there was a laying queen above and the old one below. A leak in the upper story allowed an exit and entrance. The Medina plan, wire cloth, is no doubt the right thing for fertilization. [Yes, try it. It works to perfection with us. Ordinary nuclei on separate stands take as much room as the full hive; but by putting an upper story on a strong colony the two parts of a hive separated by a wire cloth, one can work three nuclei very nicely. They are up a convenient height for working, and economize room, because they stand exactly in the same spot of another hive that may be and probably is gathering honey.—ED.]



Yes, cut and slash sweet clover down—

Don't stop to ask its name;
Call it a weed and grub it up,
And throw it in the flame.

Let bigotry and ignorance
Have now their fullest sway;
Don't stop to get a new idea,
But mow the plant away.

Let fragrant ragweed, burdock sweet,
And prickly lettuce grow;
It wreathes the mossback's face with smiles
To see such things, you know.

Just find the rut that father trod,
And be content with that;
He always cut sweet clover down,
And that is what we're at.

In *American Gardening* for March 8 I notice the following, from E. R. Orpet, in regard to the use of bees under glass; and while it has more to say about how to get the bees ready for their work under the glass than about the results of their work afterward, it can not fail to be of interest

to bee-keepers, and to greenhouse owners in particular. I copy nearly all of it.

BEES UNDER GLASS.

Where fruit is extensively cultivated in glass structures, the aid of the busy bee is often invoked, always with good results to the cultivator, but often with disastrous effect on the bees.

Our stocks were originally procured in the light-frame Langstroth hives; but as these were much the worse for wear, we determined to transfer to a more modern pattern, and were induced to adopt the Danzenbaker hive. Two weeks ago, the peach and nectarine buds being far enough advanced to show color, a hive was brought in, and, after allowing the bees their first flight, the frames were lifted out and the combs carefully cut to fit the new Danzenbaker frames, which, being slightly smaller, allowed of a snug fit without any wiring.

We noticed that there was lots of stores—honey—to carry the bees through until spring, and in the center of the hive was a patch of young brood and eggs as big as the palm of one's hand. This induced us to examine closely for pollen stored up, but scarcely any could be detected; certainly not enough with which to rear young brood.

A few large pots of single violets full of bloom were in the house, and the bees worked zealously over these, gathering what pollen was available; but, singular to say, they did not touch the old frames with scraps of comb full of honey that were laid round the new hive for the bees to clean up.

This set us to thinking, and it was reasoned that something was lacking, and that this must be pollen. Having read that, in the absence of this most essential article of food, rye meal had been found a good substitute, some was procured, and about a tablespoonful was heaped on the old hive-cover, which had also some honey spilled on it, and, presto! the result was a revelation—the bees came out and simply reviled in the meal. They became as white as millers, and at the end of the first day it was seen that all the coarse particles of meal had been carefully brushed aside, the whole of the fine meal being removed and carried into the hive to feed the young. And then they at once began to clean up the scraps of honey; not a particle remained at the end of the first day.

Some cultivators do not use bees to set their fruit-bloom, but it is the best of economy to let them do it. The cost of a swarm is soon outbalanced by the amount of labor expended in setting the bloom by hand.

It is a fair estimate that one house alone of peaches and nectarines would cost as much to set by hand as would buy a good colony of bees; and if these are carefully tended they come out stronger and better for their sojourn under glass, always provided that there is plenty of honey stored in the hive. Should their stores be short, syrup must be fed as well as the rye meal.

We used to have to borrow a swarm from a bee-keeper, and at first he did not much like the idea, unless we would guarantee him against loss; but the hive, when returned to him, threw off such early and very strong swarms that he had no further misgivings, and we became interested ourselves in the art, and have never before taken up a study that was at once so intensely interesting as that of the busy bee.

BEES AND FRUIT.

This is the name of a French bee journal now in its second year, of which we have just received our first copy. It is published in Alençon, France. The February issue contains a biography of Mr. Charles Dadant, with a fine view of this apicultural veteran. It states he was born in 1819. It should be 1817. We are glad to receive this new journal, as it abounds in interesting things relative to apiculture and farming generally.

BEES.

This is the short title of a new bee-paper started the first of the year in London. It is the outcome of a dispute between the pub-

lisher and editor, E. A. Geary, and the editor of the *British Bee Journal*, Mr. W. B. Carr. Last spring Mr. Geary sent an advertisement to the *B. B. J.*, headed, "Perfection at Last in Management." Mr. Carr very promptly returned the money and copy, saying he would not insert the advertisement at any price. The resulting correspondence is published in full in the January issue. After a long war of words the clarion notes of Mr. Geary's trumpet were heard on the hillside, and his sword leaped from the scabbard; and the result is a splendid addition to the apicultural literature of England, for *Bees* is in every way a readable publication. It is claimed that, where twelve colonies would be enough to keep one man busy in the old way, by Mr. Geary's new plan thirty can be managed as easily. Interesting results are expected.



PRIME SWARMS.

"Good morning, Mr. Doolittle. I am interested in the swarming of bees, and feel that I know very little about the principle on which swarming is conducted, so I came over to have a little chat with you regarding the matter."

"All right, Mr. Brown. But what started you off on this swarming matter now? Bees are not likely to swarm here in Central New York to any amount under nearly three months."

"Yes, I know that is so; but I have been looking over my back volumes of *GLEANINGS* during the stormy days which we have had along back, when I came across this in Dr. Miller's *Stray Straws*, page 511 for July 1, 1895: 'A prime swarm,' says Doolittle, p. 484, 'is often erroneously called a first swarm. Why erroneously?' I copied it off so that I could ask you if you ever answered that question."

"I do not remember whether I ever did or not; but I think it can be answered satisfactorily."

"But I always thought a prime swarm was a first swarm, and all of those coming later on from this same parent colony were after-swarms."

"You are correct in thinking that a prime swarm is a first swarm, for such is always the case; but that is not the question Dr. Miller raised, if I understand him correctly."

"Well, then, I do not understand Dr. Miller as well as I thought I did. What do you understand to be the question he raises?"

"He wishes to know why it is erroneous to call a *first* swarm a prime swarm. A prime swarm must of necessity be a first swarm, but that does not necessarily make

it that a first swarm must be a *prime* swarm."

"Well, what is the difference?"

"I think we can get at this matter by turning to the dictionary. All I have here at the office is the Student's Standard Dictionary by Funk & Wagnalls; and it is so brief in every thing I may not find what I want. Oh, yes! here it is. 'Prime. n. 1. . . 2. The period of full perfection in any thing.'"

"Very well. Is not the first swarm a perfect swarm?"

"No, not always."

"Please tell me wherein not."

"A first swarm, to be a prime swarm, must be in a normal or perfect condition, which is as follows: The parent colony must have an old or laying queen, generally reared the season before, or of longer standing, though this is not strictly necessary with a prime swarm. But it *is* necessary that this queen should have been laying long enough to fill the hive with brood, laid the eggs in the drone and queen-cells, while the younger bees are all of her own production. Then upon the sealing of the first queen-cell (in some cases before), this old or laying queen goes out with the bees when they swarm, so that they can establish a perfect colony in their new home at once. Here we have not only a first swarm, but a prime swarm as well, because in every way the whole thing is in accord with perfect or *normal* condition."

"But I never knew a first swarm to issue under any other conditions. Did you?"

"Oh, yes! Very many of them. And this is especially the case in very poor seasons. Two years ago I had only three swarms in both apiaries, and none of the three were prime swarms—that is, swarms like what we have just been talking about; yet all three were first swarms."

"Please explain."

"In each of these three hives, or colonies, the laying queen which was wintered over commenced laying the same as did all the others, and the bees had no more desire to swarm while these queens continued to lay than did any of the other ninety odd colonies; but just before the season arrived, when most colonies would have swarmed, had the season been good, from some reason or other these three queens died right at a time when the hive was well filled with brood and bees of all ages. The queen having died, the bees set about raising them another; and, not being content to start only one queen-cell, as is almost always the case, they started from four to a dozen, which queen-cells were perfected over the larvæ they had chosen for the purpose. Here you will see is quite a difference from the prime-swarm method. In the one case the bees and queen were all agreed in the matter, in order that a perfect swarm should go out, so she laid the eggs in the queen-cells for the queens, they being perfected from the egg, while in this latter case the bees took larvæ of their own choos-

ing and built queen-cells over them. You see the difference?"

"Yes, I see. But go on."

"When the first one of these emergency queens came out of her cell, there were several others just ready to come out, and the bees hesitated what to do till the first out began to pipe and the others to quawk, so finally concluded to send out a swarm to keep peace in the family, and soon out they came—a first swarm, to be sure; but was it a *prime* swarm, a perfect swarm, or a normal swarm?"

"From your line of reasoning, I shall be compelled to say no."

"No. It issued, to all intents and purposes, just the same as an after-swarm would, except that it had more bees, and the queens were what is called 'emergency' queens, instead of those reared where the queen laid the egg in the cell for them at the start. They had no laying queen, and the swarm must be queenless, so far as any egg-laying was concerned, till this young queen went out to meet the drone, and had eggs perfected, or from three to six or eight days; while the prime swarm had a queen ready to lay eggs in the first comb built, as soon as the cells were deep enough. I think Dr. Miller must have failed to comprehend, just at the moment he asked that question, that *prime* meant in a normal or truly perfect condition in every way."



THE outlook for the honey-crop in Arizona, up to March 10th, was very discouraging, according to one of our correspondents.

NEITHER comb nor extracted honey is moving off very freely, and this is particularly so of comb, a large part of which, if not all, could have been moved off had it not been for the comb-honey lies that have not yet been all choked off.

COMB-HONEY LIES BREAKING LOOSE AGAIN.

THE comb-honey lies are breaking out again in the Eastern papers. They first started out in Chicago, and moved southward and westward till they got to California. Then there was a gradual exodus eastward again. The Chicago papers had been so thoroughly bombarded and lambasted by bee-keepers that they probably will not rehash any more of the stuff. But in the mean time the Eastern papers began to pick up the old stories and rehash them. Among these papers is the *Philadelphia Record*, one of the very best and most influential papers in the East. Another one was the *New York Tribune*, one of the old standards. I suggest that our Eastern bee-

keepers send a few thousand letters. Pile them in so thick and fast that the editors of those papers will never again give space to such nonsense.

THE EFFECT OF WM. STAHL'S ADVICE REGARDING THE MATTER OF SPRAYING TREES WHILE IN BLOOM.

THE following letter, from one of our subscribers, a member of the National Bee-keepers' Association, shows the effect of Wm. Stahl's advice about spraying while in bloom:

Mr. Root:—I fear I am about to get my bees all poisoned. A neighbor within a quarter of a mile has an apple-orchard of 1000 trees. He bought of Wm. Stahl, of Quincy, Ill., a spraying outfit. Stahl advises spraying while in full bloom with Paris green. My neighbor says he is going to do it. You certainly know the result will be death to my bees. I sent \$1.00 to George W. York, as dues in the National Bee-keepers' Association more than one month ago, and have not heard from it yet. I also wrote to our member in Congress, and he turned my letter over to Frank Benton, who sent me his book on bee culture. Now, if you can help me to get bulletins from the experiment stations of the States that have laws against spraying fruit in bloom, I think I can convince my neighbors that Stahl's advice is all wrong. I am not an object of charity, but I am not in position to know whom to write to in order to get what I want. Will you please help me out? J. T. WILLIAMS.

P. S.—Apple-trees will be in full bloom here about April 15. J. T. W.
Noel, Mo., March 1.

There is no doubt that your dollar was received and forwarded on to the General Manager. The office has been vacant for a few weeks; but now it has been filled, some action looking to your relief will doubtless be taken.

Any amount of evidence has been placed before Mr. Stahl showing that his advice is hurtful, not only to bee-keepers but to the fruit-grower. But none are so blind as those who will not see. When a good many bee-keepers complained, he came out with a modified statement in one of his circulars, to the effect that the liquids he recommended were not strong enough to kill bees.

If there ever was a case that ought to come before the National Association, this is one; and I recommend that the Association, through its General Manager, employ the best legal talent it can get hold of to see if there can not be some redress against a man who, apparently at least, is purposely giving such advice. I for one should like to see the Association emptied of half its treasury in making this a test case. Remember, Stahl is one who has been giving a helping hand in the dissemination of the comb-honey canards.

In the mean time, those of our friends who have disagreeable neighbors who are following the advice of this man Stahl are requested to send to us at once for literature bearing on the subject. If the fruit-growers are persons who will listen to reasonable evidence presented by the experiment stations at Geneva and Ithaca, N. Y., or any other station in any State, they will for their own protection spray only before and after bloom. We are prepared to furnish leaflets on application, which will explain the matter very thoroughly.

Later.—There is another firm, the Field Force Pump Co., of Lockport, N. Y., manufacturers of spraying outfits, who have been sending out circulars recommending the spraying of trees while in bloom. We wrote a gentlemanly protest to these people, sending them facts from their two experiment stations, at Ithaca and Geneva. In reply they wrote back this courteous letter:

Gentlemen:—Our attention had already been called to the fact which you mention in your letter of March 18, and we have replied to our correspondent. We promised our former correspondent, however, that, as soon as there was a reprint of these leaflets, it would be changed to read "As soon as the blossoms fall." We are in full sympathy in your efforts to protect the bees, which are sometimes poisoned by the spray, and thank you for calling our attention again to this unintentional error on our part. Trusting that this will be satisfactory, we remain

Very truly yours,

Lockport, N. Y., Mar. 19. FIELD FORCE PUMP CO.

This firm is pursuing a very honorable course, and we are glad to recommend them to our bee-keeping friends, as they are large manufacturers. Mr. William Stahl would not lose any prestige if he were to make as manly a backdown as these people in Lockport have done.

Here is another letter that will speak for itself:

Friends:—I have lately received of Wm. Stahl, of Quincy, Ill., his catalog and instructions on spraying, in which he still advises to spray on full bloom, or at latest when first blossoms begin to pass. I had sent for his catalog in view of buying a pump. I promptly wrote him that since he would not heed our remonstrances, or mind our proofs of the non-necessity to do so, I could not think of dealing with him at all, no matter how well I might think of his pumps or quotations. I wish to suggest to you to advise the readers of GLEANINGS to again remonstrate with him.

Yours very kindly and for mutual protection.

Utica, Ill., March 1.

A. MOTTAZ.

WHY IT PAYS TO KEEP POSTED; PRICE CURRENT ON HONEY.

THE following paragraph, taken from an article by S. D. Graham, in the March issue of the *Bee-keepers' Review*, is something that bee-keepers can afford to read and ponder:

I sometimes think the readers of our bee-journals do not appreciate the real value they might get out of them. It is this knowledge, coupled with our experience, that has made us the bee-keepers we are; and it depends largely on us, not only how we handle the information we get out of them, but sometimes the value in dollars and cents. Not long ago I decided not to take any of our bee-journals, and I stopped all but GLEANINGS; and all that saved GLEANINGS was that I had it paid for a long time in advance. Near the close of the season I had an offer for a lot of honey, and I decided to write a letter accepting the offer the first time I went to town. GLEANINGS came, and in that copy it gave a report of the prospect for a honey crop in the different parts of the United States. It decided me to hold my honey for a short time. In 30 days I sold this lot of honey at 1/2 cent more a pound, and I also saved the freight on 8000 lbs. from my place to Grand Rapids. I think it would have paid for GLEANINGS 60 years.

Here is a case where the investment of one dollar for a bee journal paid back 6000 per cent. "Nuff said."

It will be a feature of GLEANINGS, as it has been in the past, to keep our readers posted in regard to the prospects and the probable ruling prices throughout the United States.

In our issue for Mar. 15 I spoke of the fact that there had been all the way from 9 to 20 inches of rain in California, depending on the locality, or at least enough to insure a honey crop in that State that produces annually from 200 up to 500 cars of honey—that is, when it produces any honey at all. If there is to be a fair crop of honey on our western coast, it is important that bee-keepers in the East, who have honey to sell, should find a market as soon as possible for any left-over crop they may have. To hold back the truth will do almost as much damage as to try to carry the other impression that there was no honey, and that prices ought to advance.

The inevitable law of supply and demand is bound to control, to a great extent, prices, providing we can plaster up the mouths of certain buyers who have an "ax to grind," that is, those who are anxious to depress prices in order that they may buy low. The exact and unvarnished truth should be placed before bee-keepers.

Suppose, for example, that we tried to give the impression that a nine-inch rain would not amount to much in California, and that bee-keepers need be in no hurry to dispose of their held-over crop. The result would be that they might hang on to the honey while it was dropping day by day, instead of letting it go at the then ruling prices.

HOW TO KEEP FOUL BROOD OUT OF AN APIARY WHEN THE DISEASE EXISTS ALL AROUND, AND AT THE SAME TIME PRODUCE FANCY COMB HONEY.

THE following letter will speak for itself:

Friend E. R. Root:—What do you think of the plan of combating foul brood as given in the January *Review*, shaking off the bees in an empty hive, thus making a new swarm, and destroying the old combs after the brood hatches? Would not the plan have to be modified somewhat to work well here, where the honey-flows are so short and uncertain?

Oberlin, O., Mar. 10.

CHALON FOWLS.

As our readers may not possibly be familiar with the item on page 23 of the *Bee-keeper's Review*, I have thought best to reproduce the editorial from the *Rocky Mountain Bee Journal* which the *Review* copies. It is as follows:

While foul brood wiped out many of the original apiarists of the State, it is not considered a serious menace by the intelligent "new blood" that has succeeded them. In the "locality" broadly included in the term Colorado (probably just as applicable to the entire Rocky Mountain region) the character of the honey-flow is such as to permit a system of management for comb honey that practically renders the apiary immune to the disease.

Some of our largest and best comb-honey producers have for years made a specialty of producing fancy honey. It is a well-known fact that section honey produced over new brood-combs will be cleaner and whiter than that produced over combs that are one year old, or older. In most localities there would be a big loss in having new brood-combs built every year. To one who has never tried it, such would seem to be the case in Colorado; but those who are practicing it assert that there is not only not any loss in the number of pounds of surplus honey produced, but an actual gain in the superior grading quality of the honey secured and the yield of wax from the old combs.

To secure new brood-combs each season and not lessen the crop of surplus honey, at the opening of the

honey-flow each colony is shaken into a new hive containing only foundation starters in the frames, but full sheets of foundation in the sections with a queen-excluding zinc between the first super and the brood-chamber. The bees will prefer the full sheets of foundation to the starters, and begin to work vigorously in the sections, building comb in the brood-chamber only just fast enough to accommodate the maternal capacity of the queen. By the close of our long honey season the brood-chamber will be filled, and the best possible work will have been secured in the sections.

To make a success of this system, colonies must be strong and the work must be done at exactly the right time. It may be said further in its favor that it effectually solves the problem of swarming.

The apiarist who practices this system may laugh at foul brood. It will matter little to him if his bees get a chance now and then to rob a dead colony in some obscure back yard that the bee-inspector's vigilant eye has missed. He will shake them off the infected combs about the time the disease would begin to show, and that would settle it for that season.

In the light of the latest and best knowledge of the subject, foul brood has lost its terror to the man who reads, thinks, and investigates. Its cure is simple and certain, and even comparative immunity from it may be had by following this system of building new brood-combs every season.

Now, then, we are in position to answer Mr. Fowl's question. The plan proposed by the editor of the *Rocky Mountain Bee Journal* is eminently practical, especially in the Rocky Mountain regions, where there is a great abundance of alfalfa. Whether one could afford in the East to melt up good combs every season is an open question. But I do know this: That our friend H. R. Boardman, of East Townsend, Ohio, one of the most progressive bee-keepers in the United States, has practiced a plan quite similar to it for years; and the last conversation I had with him was to the effect that he considered the plan profitable in the production of comb honey. His plan, however, is to cut the combs out, leaving only a narrow margin as a sort of comb-guide to build over again.

In the summer of 1886 foul brood broke out in our apiary, and the disease hung to us with more or less virulence for two seasons. At the end of the third year we had gotten it under control, but for four or five years there would be here and there a colony that showed symptoms of the old malady. In every case we traced the infection to some old combs which we supposed were all right.

In later years we have made it a practice to melt up all old combs and use nothing but those that were comparatively new. Since that time all vestiges of the disease have disappeared. So far I believe the plan recommended by the editor of the *Rocky Mountain Bee Journal* is the only way by which an apiary can be entirely cleaned of the last trace of the infection. I have talked with those who have had foul brood in their apiaries; and, while they could get it under control, they could never be quite sure that they did not have a colony in the yard that had the disease.

In view of the grave problems presented by foul brood in certain localities, and in view of the possibility—yes, even probability—that combs can be profitably cut out once in two or three years, it may be well for bee-keepers in disease-infested localities

to try the plan of producing comb honey recommended by the editor of the *Rocky Mountain Bee Journal*. I am sure of one thing—that it absolutely removes the last trace of foul brood; and, even if the practice is not as profitable for the production of comb honey as the old way of keeping the old combs, one will accomplish at least this much: He will free his apiary from foul brood, or at least keep it in reasonable health, even if the disease lurks in every apiary around his own.

GENERAL MANAGER ABBOTT.

AT the last general election of the National Bee-keepers' Association, General Manager Secor stated he was not a candidate, and desired to be relieved on account of other interests that would be taking up his time; but in spite of this statement he was re-elected. Still feeling that he could not fill the office he sent in his resignation to the Executive Board. According to the recent amendments of the constitution in the matter of selecting a new General Manager, this duty devolved on the new Board of Directors. The matter was formally presented to them, and the result is that one of the Directors, Mr. E. T. Abbott, chairman of the Board, was selected as General Manager to fill out the unexpired term of Hon. Eugene Secor. Mr. Abbott promptly handed in his resignation as chairman of Board, and the Directors are now considering his successor.

One of Mr. Abbott's marked characteristics is his strenuous aggressiveness. Perhaps the fur may fly. If it does, it will be in the defense of the rights of bee-keepers.

CENSUS REPORT ON BEE CULTURE.

THIS report has finally been issued, and one press report is as follows:

WASHINGTON, Mar. 21.—The census bureau issued a complete report to-day showing that for the country as a whole on June 1, 1900, there were 707,261 farms keeping bees. These farms reported 4,109,626 colonies, valued at \$10,186,513. During the year 1899 there were produced 61,196,160 pounds of honey and 1,765,315 pounds of wax of an aggregate value of \$6,664,904. Of the States reporting honey, Texas is first, California second, and New York third, reporting 3,422,497 pounds. The counties showing the heaviest production are Fresno, San Diego, and Tulare, in California; and Tompkins, Cayuga, and Seneca, in New York.

This is much more accurate than some statistics the government prepared some years ago. The number of farms keeping bees is probably nearer correct. The number of colonies is too low. The amount of honey produced is just about half what it should be. The trouble is, statistics are not gathered systematically in some States. Among the States that produced the largest amount of honey, California should by all odds rank first. Texas might come in as a second. The report from New York is probably correct; so also the report of the counties.

MORE rains have fallen in California, and the faces of the bee-keepers there are wearing broader smiles than ever.



SUGAR FOR BEES.

Cane and Beet Sugar; Sugar for Canning Purposes; Refined and Unrefined Sugars.

BY W. K. MORRISON.

Some of your readers are apparently not yet ready to admit that cane sugar is the best for bees that have to be fed, and M. R. Gilmore undertakes to defend beet sugar without offering the slightest evidence in rebuttal, or without even noticing the purport of my article.

I am well aware that scientific men class beet, cane, and milk sugar together, the last mentioned being closely related to the others, chemically speaking, though differing very much in taste. He is afraid that I do not know what saccharine is. Oh! I do; but I have seen it suggested very much as a food for humans, and at least one bee-journal suggested using it for bees, and no doubt it is pure—that is, it is a pure chemical. Cane sugar, according to the chemists, is embraced in the chemical formula $C_{12}H_{22}O_{11}$. But this does not embrace our commercial sugars, as will be readily seen by reading my last article on this subject.

The grocer who was fined so very heavily by a high English court for selling dyed beet sugar made the very same plea that Mr. Gilmore makes, which is that sugar is sugar; but the learned judge very properly declined to entertain this sort of argument, and decided, in a common-sense way, that beet sugar is not cane sugar.

As a matter of fact, there are many sorts of cane sugar imported into the United States, it would be hard to state how many. The sugar trust, of course, tries its best to make them all alike; but Mr. Gilmore ought to read the Dingley tariff bill, and see how that genial old gentleman, Uncle Sam, manages to arrange a different rate of duty for each sort. Why? In the West Indies and South America some cane sugar will show 20 per cent grape sugar, which is a very good food for bees. I will send by this mail samples of different kinds of sugar for the editor to examine, and compare with beet sugar. No doubt he will pass an unbiased opinion, and say whether I am right or not. But it would be rather queer if he decided against me.

If Mr. Gilmore is a man of science he should know that sugar with a large percentage of ash is good for producing bone, chitine, and horn; and he should also know that grape sugar, or levulose, is good for bees—at least he ought to know the theory of it, and the bulk of scientific opinion is with me on this point. Further, European

bee-keepers who are experts on this subject agree in stating that the kind of sugar I recommend is the best for feeding bees; and Mr. Gilmore need not fall into a common error in supposing there are no scientific men among bee-keepers, more especially in Europe. In my opinion the American bee-keepers would use no other than the kind of sugar I suggested, only it all goes into the very capacious maws of the sugar-trust. He ought to taste some of this rich honey-like sugar before it is chemicalized and bleached to suit the American market. In the process it loses some of its most desirable characteristics. The Californians are not mistaken in using it for their fruit. They have long used it, and built up a reputation on it. Beet is often used to give a contrary effect to what the Californians want, which shows the latter are right in their practice.

In my article I gave an analysis of a sugar that has proved in the hands of European bee-men to be a good bee-feed; and unless Mr. Gilmore is prepared to produce a similar article, or better, he should cease his otherwise well-meant criticisms.

In writing my article I did not feel called upon to write a dissertation on the chemistry of sugar. The readers of GLEANINGS are mostly practical men who would not appreciate such an article. For my part I object most strenuously to chemical sugar, just as I object to what the chemists call pure water. I should hate also to see maple sugar converted into the pure cane sugar of the chemists, and I doubt very much if any one would buy it to eat; and for similar reasons it is not well to convert cane sugar, healthful and pleasant as it is, into a chemical sugar. Mr. A. I. Root says we should use none but pure sugar. This is unkind. I never suggested the use of impure sugar.

Mr. Huber Root comes nearer the truth; but the sugar I mentioned does not show the same analysis as beet sugar, hence his arguments fail; and it seems odd that none of my critics seem to pay the slightest attention to the analysis of the sugar recommended. *The whole disputation hinges on that.*

This question contains the very kernel of the bee-keeping business; for if we once admit this sort of argument, that all sugars are alike, the next step would be easy—namely, "honey is glucose;" in fact, this is the conception that is common among chemists, and which gives rise to the opinion that many of them entertain that it would be easy to make honey by synthesis. No one is more willing than I to admit the great value of chemical science; but for practical men chemical theory is wholly uncalled for in the pages of a journal like this. I can only assure your readers that there are many kinds of cane sugar. If they find any difficulty in getting samples of them, I am ready to assist them through The A. I. Root Co.

Oct. 17.

[Mr. Gilmore, to whom the foregoing was sent, replies:]

I have not now at hand the first article by W. K. Morrison on the subject of beet and cane sugar, so I do not now well recall his points; but it seems to me that his main controversy was that cane sugar is better and sweeter than beet sugar; while I said and still maintain that there is no difference between the two when they are refined. Of course, there is a difference in the unrefined, just to the extent of the differences in the non-sugars or impurities contained in the product. These impurities may be of such a nature as to impart a pleasant and desirable flavor, as in the case of maple sugar, sorghum sugar, and most sugar from cane, though I have seen samples of sugar from cane which had a rank, disagreeable odor also. On the other hand, these impurities may be of a nature such as to give an acrid and unpleasant flavor, as in the case of sugar made from beets; but removing these impurities, or refining, leaves no difference in taste or quality.

But I should not have expected an apiarist to advocate the feeding of any thing but that form of food which would be as nearly as possible entirely assimilable, leaving as little as possible of residue for excretion. Certainly I think that nothing but the purest sugar obtainable would be wise to use for winter feeding in our northern climate, where the bees can not fly for many weeks together. I believe that Mr. Root and all our leading apiarists will agree with me in this.

I have tasted some of the "rich, honey-like" South-American sugar before it is—I do not say "chemicalized"—but refined, and I do not say it is not pleasant to the taste. I will say that I like the flavor of the cane, so do I like the flavor of sorghum; but that is not saying that either one would be so good a food for bees; in fact, I think practical bee-men will say that the substances which give these flavors are detrimental to their usefulness as food for bees except at a season when they can fly freely. I do not understand what neighbor Morrison means by speaking of converting cane sugar into a "chemical sugar." If he means the process of refining, then I can not allow that the sugar is "converted" or changed, but only that the non-sugars or impurities are eliminated.

I think it is hardly fair for neighbor Morrison to class me in the same category with "the grocer who was fined so very heavily by a high English court." I do not agree that that grocer and I make the same plea. The grocer was simply making a false pretense, obtaining money thereby, so perpetrating fraud. This is nothing different in principle from the making of imitation maple syrup from cane sugar by means of corn-cobs, or the making of "extracted honey" from glucose.

Further, I think it would be folly for me if I supposed "there are no scientific men

among bee-keepers" to address in a scientific manner a body of bee-keeping readers. Quite on the contrary, I regard bee-keepers as a class of more than average intelligence and scientific reading.

If, as would seem from the tenor of the second article, neighbor Morrison is contending for the superior quality and sweetness of unrefined cane sugar over unrefined sugar from beets, then I have nothing to say against it; but since, when one speaks of sugar, pure sugar, that is, refined sugar, is meant and understood, I very naturally thought from his first article that he meant to contend that there is a specific difference between sugar from cane and sugar from beets, a notion which I have found to be quite commonly though incorrectly held, by reason of ignorance in regard to the composition of sugar, and, indeed, to the whole matter of sugar, as to production, processes of manufacture, sources, distribution, consumption, etc. This question was very frequently brought up by visitors to the sugar exhibits at the Pan-American Exposition, and was answered by the cane-sugar experts exactly the same as it was by me. Mr. R. Glenk, chemist of the Audubon Park Sugar Experiment Station, Audubon Park, Louisiana, who was in charge of the Louisiana State Exhibit, was in perfect accord with my views. But, if neighbor Morrison is arguing simply in regard to unrefined sugars—why, he and I are also in perfect agreement, hence no call for a second article from either of us. And yet he says, "Mr. A. I. Root says we should use none but pure sugar. This is unkind. I never suggested the use of impure sugar." But what is pure sugar if not pure sugar? Certainly a mixture, though a natural one, of twenty per cent grape sugar, a certain per cent of mineral salts, and a certain per cent of cane sugar, is not pure sugar, though it be purely a product of cane, any more than a certain per cent of mineral salts naturally combined with a certain per cent of cane sugar would be pure sugar, though purely a product of the beet. I certainly should not call this latter a pure sugar, and I think no one else would.

Valley, Neb. MELVIN R. GILMORE.

[Mr. Morrison replies:]

Mr. Root:—"The proof of the pudding is in the eating." Mr. Gilmore and I must agree to disagree. He is talking about sugar as a chemist, not as an epicure nor a bee-keeper. In Europe, the land of beet sugar, the bee-keepers have long since decided to use cane sugar—not what a chemist calls cane sugar, but the real simon-pure article, extracted from the cane-plant. It is a pure sugar from the consumer's point of view, and is good enough for the tables of the richest in the land. It commands the highest market price, and is preferred by epicures who put flavor before appearance. From the experiments of Dr. Planta, a great chemist, as well as many other less distinguished, it has been proved that

a highly refined chemically pure sugar is not good for bees; and when we recollect that honey is quite a different thing entirely it follows that the bees are compelled to digest what their internal organs are not adapted for. We know that, after passing through the organs of the bee, common sugar is partially converted into glucose. If extracted and fed again, it is still further converted into glucose, and the process may be continued till it is all converted into glucose. Such a process is a great strain on the bees, and we bee-keepers should try to avoid this by using the best sugar possible for the purpose. The presence of albuminoids, amides, gums, salts, etc., all conduces to the health of the bees, showing that their constitution somewhat resembles humans in its rebelling against chemically pure foods. And while honey is set down by chemists as glucose, and nothing else, it is not so in actual practice. A good many kinds of honey contain cane sugar in small quantities, also albuminoids, gums, oils, wax, amides, salts, etc., so that there is a great difference between glucose and honey, though both are alike according to the chemists. We may be allowed to paraphrase the saying of Pontius Pilate with regard to truth, and ask, "What is honey?" and, going a step further, say, "What is sugar?" Here let me say again that that English grocer made the very same plea that Mr. Gilmore makes; namely, that beet sugar is cane sugar, and so it is—to a chemist.

What little I know about chemical science I owe to one of the great Meyer family, of Germany—surely a name to conjure by, Mr. Gilmore will admit; and I believe, from what he taught me, we are still far from understanding the sugar question.

Prof. Armsby hits it off far better than I can do, in his "Manual of Cattle-feeding," page 44, where he states, in speaking of the sugars: "They all resemble in a general way cane sugar in their properties, though they are *by no means identical*." (The italics mine.) Surely my opponent will admit that Mr. Armsby is a very high authority, more particularly as he is following in the footsteps of a very great German authority, Mr. Wolff. Following the same authority, and also that of Prof. Henry, in his "Feeds and Feeding," Mr. Gilmore will find that the presence of extraneous matter in food is a help to digestion. One that is familiar to many is that of Graham versus fine bolted flour. Another instance that is familiar to cattle-feeders is that of corn meal versus corn and cob meal. Both are equal as regards feeding value, though the corn and cob meal is much inferior, chemically speaking.

I know there are some who believe that the future man will live on pure concentrated extracts and the like, but they haven't a leg to stand on. Persons who try that sort of thing get dyspepsia, and so do bees. Nature rebels against it.

When living on the eastern shore of Maryland I worked for three different canning-

factories, and none of the three or any others there would use beet sugar with their fruit for canning, and it seems to me this is a rule everywhere. It is so in condensed-milk factories. The manager of the New York Condensed Milk Co. (Gail Borden), an old friend of mine, told me that his company would use only the best cane sugar. They never would use beet sugar. It is the same in Europe, where beet sugar is king. They won't use it in milk. This is what Fleischmann, the very highest authority in the world on milk, has to say: "The experience which has been acquired up till the present time in the preparation of condensed milk points to the fact that the fresh milk should be previously warmed with 12 to 13 per cent of cane sugar—*beet sugar has proved itself unsuitable.*" The italics are mine. Coming from one of Germany's most celebrated scientists, from a country where beet sugar this is supreme, is very important testimony; and from Germany, Switzerland, France, and Great Britain, beet-sugar-consuming countries, has come nearly all the testimony that beet sugar *has proved itself unsuitable as a bee food.* Nay, more; the bee-keepers of Europe look to the West Indies and the East for their sugar supply, using it just as it is sent. It is not "raw" sugar, as Mr. Gilmore supposes. I am so isolated that I am obliged to rely wholly on my own library for references, but I think I have done enough, and rest my case, as the lawyers say. W. K. MORRISON.

[After I had received the articles from the two gentlemen referred to, one came from J. M. Rankin, of the Michigan Experiment Station, who had not seen any of the articles except Mr. Morrison's first one, leading up to this discussion. He seems to support the opinion of Mr. Gilmore, the beet-sugar expert at the Pan-American exposition. Mr. Rankin writes:]

BEE-T VS. CANE SUGAR AS A BEE-FOOD.

It seems a useless waste of space to discuss beet and cane sugar at this late date.

"If it were done when 't is done,
Then 't were well if it were done quickly;"

that is, if writing this article would convince our skeptical brethren then I would feel that I was really doing a lasting good to the bee-keeping public. Many able articles have preceded this one on the subject, and the chemical side of the question has been discussed in a former issue of this journal so much more ably than I could possibly handle it that I will refrain from touching the chemical side of the question, and will give the reader an account of some actual experiments along this line.

Early in the history of the Michigan Sugar Co., whose factory is located at Bay City, and was the first factory built in Michigan, the chemist of our Experiment Station requested me to test the product of this factory as a bee-feed. I wrote to the Michigan company, and procured a sack of 100 pounds of what I knew to be beet sugar. It came direct from the factory, and in a

sack on which was printed the trademark of the Michigan Sugar Company. (I send herewith a sample of this same sack of sugar to the editor.)

October 10, 1899, the brood-chambers of five colonies of bees in the apiary of the Experiment Station were extracted clean, and syrup made from this beet sugar was fed. October 15, five days later, five more colonies were extracted clean, and fed on syrup made from sugar that was known to be the product of sugar cane. No honey was gathered after this date, and the ten colonies under experiment went into winter quarters as nearly of equal strength as it would have been possible to select them. The bees were wintered on summer stands, packed in chaff. All ten colonies came through the winter in prime condition, and no preference could be noticed for either feed. In fact, I thought not enough of the experiment to publish it in full, as there seemed to be no case against the beet sugar, and I had no idea that such a dispute would ever come up as has taken place in the journals within the last year. I merely mentioned, in the Report of the State Board of Agriculture of Michigan for 1900, page 91, that such an experiment had been carried out.

The following year some beet sugar was offered for sale that had about it a peculiar odor. It looked like any other sugar; but when kept sealed in a glass jar for a few weeks, upon opening the jar an odor was detected. Syrups were made from this sugar, and placed in open dishes in the tops of some four or five colonies of bees. Each dish was placed beside a dish of cane-sugar syrup. The dishes were all exactly alike, and in each was placed one pound of the mixture. In every case the bees emptied the dish containing the syrup made from the sugar with the odor before scarcely beginning on the dishes containing the cane sugar. Two colonies were wintered on this sugar, and came through the winter in perfect condition.

What is beet sugar? Is it some new product of the last few years which was entirely unknown before? Let me quote a few statistics from A. Boucherau's Statement of Sugar Crop. The following shows the percentage of cane sugar that has gone to make up the world's sugar supply:

1865	69.8 per cent.	1885.....	51.2 per cent.
1870	62.9 "	1890.....	45.0 "
1875	54.3 "	1895.....	40.7 "
1888.....	52.2 "	1900.....	35.6 "

Does it seem reasonable—(I leave it to the reader) to think that, during all these years, we have been using cane sugar entirely? It will be noticed by examining the above table that, since 1875, nearly half the sugar consumed in the world was made from beets.

In conclusion, let me quote from a man whose name is dear to every farmer in Michigan, and honored by the college men the world over—Dr. R. C. Kedzie, the veteran Experiment Station Chemist of America.

He said, when asked what the difference between beet and cane sugar was, "There is only one answer to this question; cane sugar and beet sugar are the same. It is not a question of similarity, but of identity. Chemists, the world over, are agreed as to the identity of cane and beet sugar, and all statements of differences and properties—of inferiority or superiority of these sugars—are either in ignorance or for deception. We sometimes say, 'As like as two peas;' but no two peas are exactly alike; such comparison does not hold on this subject, for it is not a question of likeness but identity.

"The suspicion was aroused by the sugar trust that beet sugar is inferior to cane sugar, and this suspicion has been carefully nourished by the sugar trust; and the statement has been so often repeated that many folks have believed it. What are the facts? For the last three years the people of the Northern States have used beet sugar almost exclusively. Look at the world's sugar production in 1898. We were at war with Spain, and little sugar was produced in Cuba and Porto Rico, and less still was exported. None was obtained from the Philippine Islands; the sugar from the Sandwich Islands was required for our people on the Pacific coast; Louisiana could not make enough sugar to supply herself and the Gulf States. Where could we get enough sugar to supply the millions of tons required for the world's consumption if we depended on sugar from the cane alone? The supply of sugar from sugar cane has been insufficient to fill and replenish the world's sugar-bowl, and for three years past we have been in a large measure cut off from that source. If it had not been for the beet sugar of Europe the world would have gone hungry. Beet sugar at this very time furnishes two-thirds of the world's supply. The supply of refined sugar for our own use for three years past has consisted very largely of beet sugar from Germany and France." J. M. RANKIN.

[I have read this discussion thus far very carefully, and I do not see that there is very much disagreement between our correspondents except as to the suitability of unrefined sugars for bees. Mr. Morrison argues in favor of the rich honey-like sugar before it is chemicalized and bleached to suit the American market, and there is no question but such sugar does have more flavor than the refined sugars of either beet or cane. Personally, on my own puddings and pastry I prefer them to the refined article. While there can be no question that many honey-like sugars have more flavor, I believe there is a question as to whether such sugars are as healthful for bees.

Many years ago A. I. Root conducted a long series of experiments, feeding the brown sugars, coffee A sugars, and granulated sugars, all from the sugar cane, because at that time there were no beet sugars on the market. He came to the conclusion

that the white or refined sugars were not only cheaper but more wholesome for the bees, for northern climates like ours. The dark sugars had a tendency to bring on dysentery. Other bee-keepers have since verified A. I. Root's experiments; and throughout the United States, at least, granulated sugar only is used when made into syrup for feeding bees for winter.

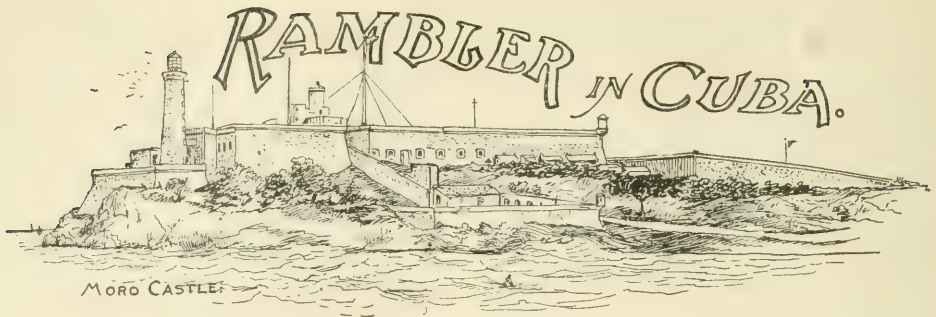
Mr. Morrison also writes as though honey were more wholesome than sugar syrup. He says, moreover, that syrup fed to bees is partly converted into glucose. Chemically speaking I suppose that is true, although we have said of late that either nectar from flowers or sugar syrup is "inverted" in the organs of the bees, or, as Prof. Cook puts it, "digested." If I am correct, nectar is a cane sugar—that is, a chemical cane sugar; so also is granulated sugar which we feed to the bees. Either one goes through a chemical change in the organism of the bee; but the nectar of flowers, being almost as thin as water, is, as a rule, more thoroughly digested, or inverted, and may, therefore, be more easily assimilated. It has been the practice of late to feed all sugar syrup thin—much thinner than recommended years ago, for the purpose of securing much more thorough inversion of the syrup before it goes into the combs.

Some years ago, I think it was Mr. Jas. Heddon (and his testimony was supplemented by a numbers) who argued in favor of sugar syrup rather than honey as a winter food; and, as a rule, I believe bee-keepers, at the same price, have preferred granulated-sugar syrup because it was free from deleterious flavors and substances that have a tendency to clog the intestines of the bees.

I believe it is true that, in England, and perhaps throughout Europe generally, cane sugars have the preference over beet sugars as a bee food; but this preference, I have been told, is based on the theory or fact that an unrefined *cane* sugar is more wholesome than an unrefined *beet*. Whether or not there is any thing in this, I do not know. I believe it is also true that some canning-factories have at least a preference for sugar from the cane. Whether that preference is based on an erroneous notion or not, I can not say.

I do not believe it is wise or best to continue this discussion any further; for when doctors disagree, who shall decide?—ED.]

J. D. C., N. C.—I do not think there will be any difficulty about your moving your bees any time, providing the weather is warm enough to permit them to fly at the time you move them. You should make some arrangement to see that the combs are securely fastened in the hive, and the bees have plenty of ventilation. Wire cloth should be put over the entrance, and wire cloth or thin muslin over the tops of the hives. In moving bees it is necessary to give a large amount of ventilation. Wire cloth at the entrance only would not answer.



RAMBLE 199.

Troubles with a New Language; Mr. Brown, of Tulipan; Glimpses of Life in the Tropics.

BY RAMBLER.

When a lone traveler from the States drops into a city like Havana there is another peculiarity that strikes him with considerable force. His tongue does not fit at all with nine-tenths of the tongues he meets. When several full-grown men are in turn asked a civil question in English, and they stare at you, and repeat a jargon of words you do not understand, with many motions of the hands, and so rapid as to sound about like hail pattering on a tin roof, you begin to realize what a wretched time the confusion of tongues caused at the tower of Babel. But I did not worry a bit. I rather enjoyed the situation. It was something new and novel. As a natural outcome from such a condition the traveler will seek his own, or, in other words, "birds of a feather will flock together," and I was temporarily quartered at Hotel Thrower, where patrons are all Americans, and can speak a civilized language. I was not slow to talk about honey matters, and had not talked far with Mr. Thrower before he remarked, "If you are a honey-man you must see Mr. Brown, of Tulipan," and he gave me directions to find him in the suburbs of the city. A short time after, I was talking with Mrs. Thrower, and she "threw" the same advice to me: "You must see Mr. Brown, the great bee-man at Tulipan. Why," said she, with enthusiasm, "we had a delightful basket picnic there last Fourth of July. A great affair it was too—honey all we could eat; speeches, flowers, and the hum of the bees under the palm-trees."

Dr. James Warner, an American, is a bee-keeper of note as well as a popular and successful dentist of many years' standing in this city. While spending a very pleasant evening with him he also propounded the question, "Have you seen Mr. Brown, of Tulipan?"

Mrs. Warner also, soon after, entered the room, and in the course of conversation said, "You must see Mr. Brown, of Tulipan."

Then there is the Rev. Mr. Herrick of the Congregational mission in Havana, heroically hoeing his row, digging up tares of

rank growth. We had not conversed long before the advice came, "You must see Mr. Brown, of Tulipan." His son and then his wife were introduced to me, and it was again, "You must see Mr. Brown, of Tulipan."

I was attracted to a restaurant because it bore in large letters, "California Restaurant." Charley Chinaman, a round-faced jolly fellow, was manager. We swapped ideas about California; and when I mentioned honey matters he remarked, "Oh, l'yes! honey, honey; l'you kl'now Mr. Blown, of Tluliplan? Oh! ha—l'you must see Mr. Blown; him gleet blee-man—ha-ha."

Certainly I wanted to see Mr. Brown; and when the opportunity came for me to go to Tulipan I had forgotten my directions; and, though on the Prado, where hundreds of people were passing, I knew I should have to ask many before getting the infor-



"SHE WALTZED UP IN FRONT OF ME."

mation. While I was revolving these matters a gentleman stepped up to me and remarked, pointing to a street-car, "That is a Cerro car."

"So I observe," said I; "but I want to go to Tulipan."

"Oh! it is Tulipan, hey? Why, you must be seeking Mr. Brown, the bee-man;" and he gave me full directions for getting there.

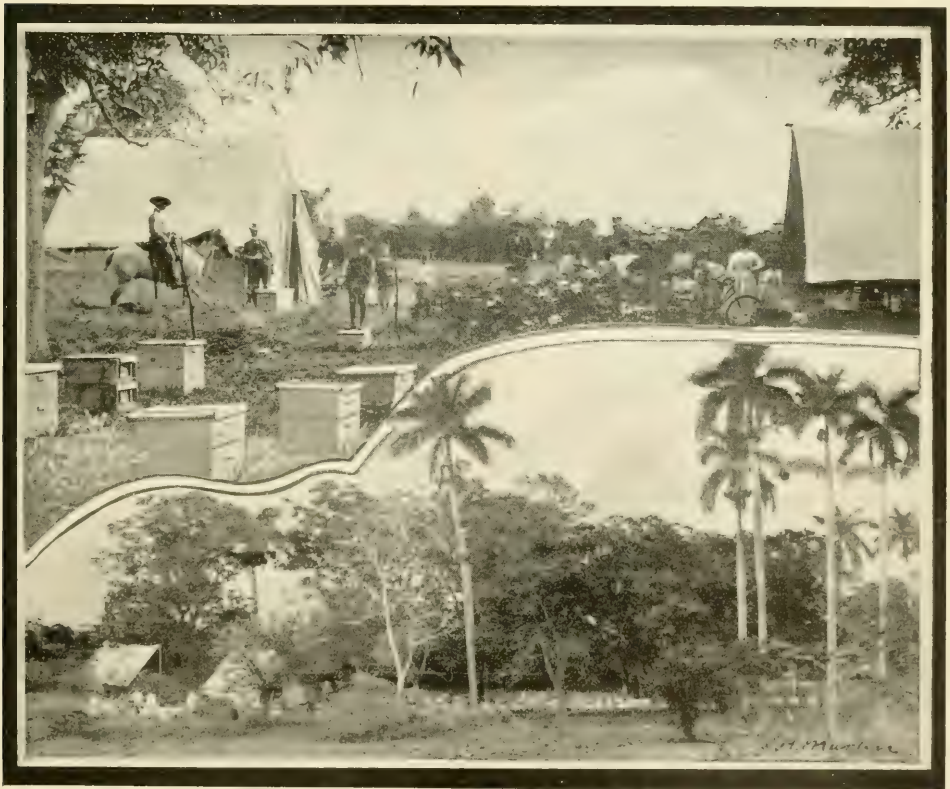
And you will excuse me if I began to think things were coming my way quite fast when an utter stranger should step up to me and give me the desired information at the desired moment.

Tulipan is a close-in suburb of Havana, and near the end of my journey I was following a stone canal. Approaching was a tall angular negress, and cutting up such antics trying to dance a jig upon the edge of the canal. We met; and, instead of passing me civilly, she waltzed up in front of me with her long uncanny fingers elevated, and her bleared eyes and ugly mouth within three inches of my face; and such a savage expression and flow of words—abuse or compliments it was all the same to me. I stood my ground, looked her in the eye, and shouted, "Senor Brown! colmenero Brown!" and such a magic effect as the

name "Brown" had upon that witch you can not imagine. She just faded away, and slouched off up the canal without another word.

Well, I found Mr. Brown camping in tents with his bees—about 120 colonies—under the mangoes and palms. Mr. Brown and I were soon acquainted. He has lived in many portions of the States, and is well posted upon all topics of the day, and has taken to bee-keeping very recently in Cuba.

There is an old adage that, "if you give the persistent seeker after knowledge the handle, he will pump you dry." I found Mr. Brown somewhat inclined that way, and I have no doubt his pleasant talkative qualities are the reason of his being so well known and popular with the American colony in Havana. His apiary was imported from the States—one portion of it from Missouri and another from Vermont. The Missouri contingent was started by Mr. Cully, of Higginsville. Mr. Cully being accidentally killed on the way, the bees, after many delays, arrived in Cuba 21 days after shipment, half of them dead, and the rest in a weak condition. The Vermont bees came through in a week, all alive, at an expense of about \$2.00 per colony; and, though Mr. Brown's bees have cost him about \$10 per



MR. BROWN'S APIARY IN CUBA

colony, he concludes that, if the shipment is not delayed, bees can be shipped here profitably from Texas and all States east of the Mississippi River. Bees, however, can be so rapidly increased here that it is better to buy than to run the risk of shipping. I will tell you later how it can be done economically.

Owing to the aforesaid propensity to seek information, Mr. Brown secured a great variety of it from the many bee-keepers he interviewed, and some quite contradictory. We all want to get on fast, and so does Mr. Brown; and this desire led him to push his insertion of sheets of foundation too fast, putting two frames where the condition of the brood-chamber would barely warrant one.

Mr. Brown is a close reader of bee literature, but could find nothing conclusive upon that point, and he remarked that he did not see why the A B C of Bee Culture couldn't tell just how, when, and how fast to insert foundation into a colony weak or strong; and that is a point, Mr. Editor, for you to look to in the next revision of the A B C.

I herewith present photos of Mr. Brown's pleasant location. The hives are nicely shaded under the mango-trees. This tree blooms twice during the year, and the bees work with energy upon it. I am told that the fruit of this tree is delicious, but it is so tender that it will not bear shipment. In this respect it is like many varieties of fruit on this island.

In this photo you get your first glimpse of the royal palm as far as my rambles are concerned. It is indeed a noble tree; and this, too, has a honey-producing blossom. The palm is a useful tree in many other respects, as I will show you later.

That Mr. Brown is a sociable man is shown in the next photo. His neighbors, great and small, Americans and Cubans, are all in the picture. Mr. B. is the center figure, with a wheel in front of him. Another notable figure leaning against the tent corner is Hilar D. Davis, of Vermont, of whom more anon. Then there is a Cuban mounted rural guard. We meet them on every road—a natty uniform, machete, revolver, and a carbine. He is a sort of useless arsenal, but it is dear to the heart of the Cuban to bear the insignia of office.

Mr. Brown uses the tent in the foreground for extracting honey, where we find a two-frame extractor. He is quite proud of his uncapping-tank—uses a barrel with a wire-cloth strainer about ten inches from the bottom.

At present, Feb. 7, Mr. Brown is happy from the fact that his bees have recovered from their setback, and are enabling him to fill his barrels with honey. One colony gave him 90 lbs. at one extracting. Mr. B. is a good salesman, and retails quite a little honey in Havana. He has worked up quite a market for honey in brood-frames. When he finds a super with one or more combs newly drawn from foundation, nice-

ly sealed and white, he calls that a "seller," and sells it for one peso (dollar).

May the shadow of Mr. Brown never grow less.

NOTES OF TRAVEL.

The Colorado Desert; the Old Seabed; the Economic Value of Deserts; Southern California; Frank McNay.

BY E. R. ROOT.

On leaving for Los Angeles I took the Southern Pacific at Maricopa. I had read a good deal about the Colorado Desert in Southeastern California; of the fact that my route was to be over the hottest place in the United States; and I was anxious to see for myself, and now I was to have that long-cherished hope gratified, and I did. I remember distinctly when we got into the desert country how I suffered from the heat, dirt, and sand, and well do I recall the wierd sensations that came to me as I got into the old seabed on this side of Salton—a basin or bowl *300 feet below the level of the sea*, perhaps 25 miles long and about 5 miles wide. I had a very strong field-glass, one of the Treider binoculars, and with this I took in the country far and near. As we reached the edge of the celebrated basin I began to see the mirage. To all appearances we were making toward the shores of a beautiful lake or sea, instead of going down, down, into one of the most desert portions in all the United States. Steam was shut off the engine, and gradually we moved down into this valley of death and stillness, where nothing can exist for any length of time, not even the salt grass. Occasionally, I am told, there are tracks of animals going across the desert, but they were in straight lines, because they know there is nothing in that waste for them. The ground is parched and broken into great gaps, and it seemed almost as if Mother Earth were yawning to receive us. Some parts of the basin are as level and hard as a granite floor. Other parts glisten with sand that is finer than snow. As we descended into the very bottom of this immense bowl, we appeared to be, not in a depression, but on the summit of a knoll; and when we looked in every direction it appeared as if we were on an island, and looking down toward inviting shores. I pulled out my glass and tried to discern more clearly this mysterious water with its ever-vanishing fleeting shore-line that so deceives the traveler. By looking very carefully I could see what seemed to be a sort of fog that was perfectly level on top; but so far as any water or moisture was concerned, I believe there is nothing of the kind—a sort of mysterious something due to the reflection on the sand, and the immense heat. I was told that, if I could get out of the car and lie with my head to the ground, this mirage would appear close enough to throw a stone into the water.

But the temperature! I never suffered from the heat in all my life as I did in that desert bowl. The passengers seemed to consider comfort beyond conventional decorum. We pulled off our coats and vests, and still the heat was insufferable, and the sweat oozed from every pore—not the profuse perspiration that we experience in damp countries, but a very slight thin moisture all over the surface of the body. On we sped until we reached Salton, a veritable oasis—indeed, a little town on the west edge of the basin, and where, it seemed to me, there was no chance for any population to exist. But here is, nevertheless, quite a respectable town, and all because of water which is obtained from the mountain-sides.

But before we go further on the trip let us make some observations about the desert out of which we have just come. This bowl, or seabed, which is 300 feet below the level of the sea, was originally, according to geologists, a part of the sea, and probably had direct connection with the Gulf of California. It appears that the Colorado River has queer freaks, and every once in a while it overflows its banks, and sometimes the entire country. In one of these freaks it is supposed it changed its course, flooded the country, closed up the old outlet by carrying sands and silts, and shutting off the connection to the Pacific itself, leaving an inland body of water. As the water was very shallow, the intense heat evaporated it, leaving a great many little basins here and there. But the largest and most wonderful one of all is this one of the Salton seabed. Travelers tell us that the old shore-line is very clearly defined; that there are evidences that the Indians once lived on these shores, that there are crude relics of their handiwork scattered all along.

In this Salton bed nothing will grow. Wood will not rot; iron will not rust; a carcass will not decay. Every thing is parched by the sun. I have seen no estimate or figures as to what the temperature may be out in the open; but I will guarantee it is hot enough to fry eggs up to the queen's taste.

I learn that a gigantic enterprise is now on foot to reclaim the Colorado Desert (of which this old seabed is a small part) in Southeastern California. It is proposed to divert the Colorado River into its old bed and make a large area, of about 100 or 150 miles square, into a garden of Eden, or like the other portions of California where tropical fruits are grown. But a note of warning is sounded by some who have given this matter no little attention. It is argued that these deserts in and about California serve a very useful purpose in giving the necessary heat to those localities that are now under cultivation. The sun's rays pour down on these desert sands with relentless fury. The heat is thus stored up in Mother Earth. The wind wafts it over the mountains into the valleys that are un-

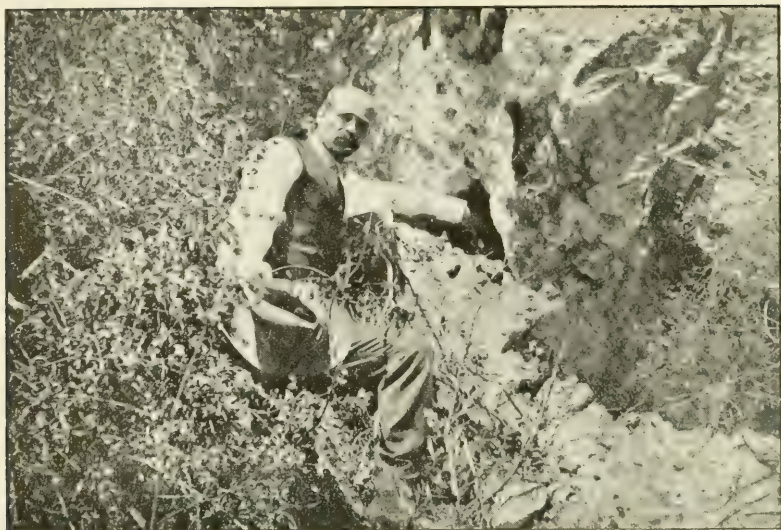
der cultivation. The contention is that, if the Colorado River is changed back to its old bed and the Colorado Desert is converted over into fertile plains, growing all kinds of fruits and grains, then this immense furnace or storage battery of heat will fail to give off its supply of dry hot air so needful to the growing districts of other parts of Southern California.

There is no doubt at all that the all-wise Creator has arranged the mountains and the deserts, the lakes and the seas, just where it is best. Man had better not, perhaps, go too far with his irrigation schemes, else he may kill the goose that lays the golden egg. But we will not moralize on this question. No human being, at least, can tell what the result will be. Some authorities seem to think that man will not be able to carry out this great scheme; that Nature, having a plan of her own, will thwart his efforts. We shall see.



FRANK M'NAY AT HOME.

We now leave Salton, with its great heat, and pass onward into the higher lands between the mountains. We realize, by the puffing and snorting of the locomotive, that we are climbing onward and upward. The mountains on either side of the Southern Pacific tower up in peaks 10,000 feet high, and afford quite a change of scenery from the bed of the sea from which we have just emerged. The temperature begins to drop. We find it comfortable to put on our vests again, and then our coats; and it is not long before I begin to realize the need of my overcoat—a useless thing which I have lugged 2000 miles all for naught—or at least I thought so up to this time. The air begins

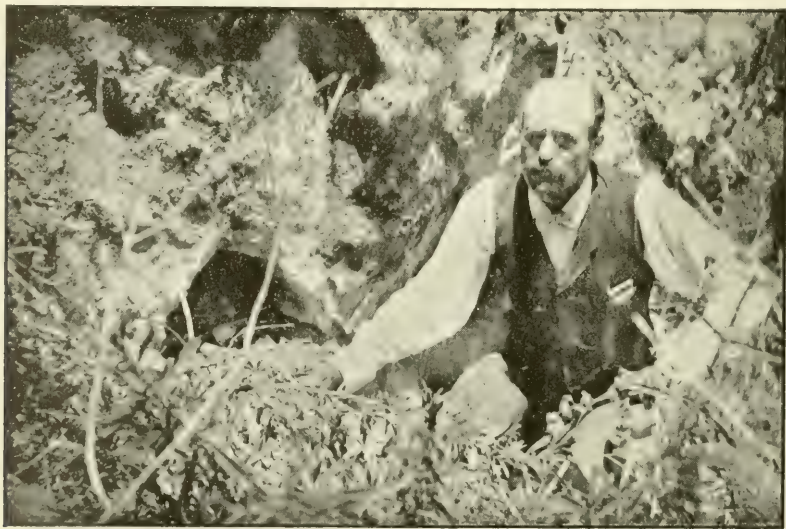


FRANK M'NAY'S BEE-CAVE.

to grow chilly, for it is getting toward evening. As our train stopped at the various points, oranges, bananas, and all tropical fruits, are offered at ridiculously low prices. As we speed on, here and there I see beeyards, and bee-men working to prepare for the honey-flow which is bound to come in a few days. Ever and anon we pass heaps of oranges lying on the ground. They were culls, or slightly rotten. Here they were, all going to waste because there was no market, or at least it did not pay to ship to the East any thing but the select fruit.

Beautiful orange-groves and ripe fields of grain flit by, and such cultivation! Finally we land in Los Angeles, indeed the "city of the angels." In fact, this country for 100 miles around seems to be God's country if any part of the world deserves that name.

I put up at the Natick House, a large hotel in the center of the city, where one can get board and lodging on the European plan. A large beautifully lighted room, clean bed, and modern furniture, for 25 cents; and meals, the very best of them, for the same money. One can live in Los An-



FRANK M'NAY UNDER FIRE (BEE-STINGS)

geles very economically, if he chooses; or if he wants to be in style, and be in with the nabobs, he can pay as high a price for hotel accommodation as he desires; but as I was not a nabob, I was content to live on a level with common people.

Almost the first bee-keeper I met in Los Angeles was Mr. Frank McNay, formerly of Mauston, Wis. He was particularly successful as a bee-keeper in his old State, beginning in the business when he was only 17 years old. In his early experience he had more difficulty in selling a single barrel of honey than he had later on in selling carloads. He located something like 25 different apiaries in Wisconsin, and was doing a flourishing business; but ill health compelled him to seek a new location. He wandered westward until he landed in California. He had made a fair competence, and it was not necessary for him to work as hard as he formerly did; and when we met he was keeping bees for pleasure as well as profit. He lived in Los Angeles, and had one and possibly two out-yards not very far from the street-car line, and within two miles of Pasadena. At the last-named city we secured bicycles, and took a run out around to one of his out-yards. It is shown opposite, and over beyond is what is known as Eagle Rock. On the top of this one can, on a clear day, see very distinctly the beautiful outline of the ocean some 20 miles away, and the islands off the coast of California, 20 miles further still.

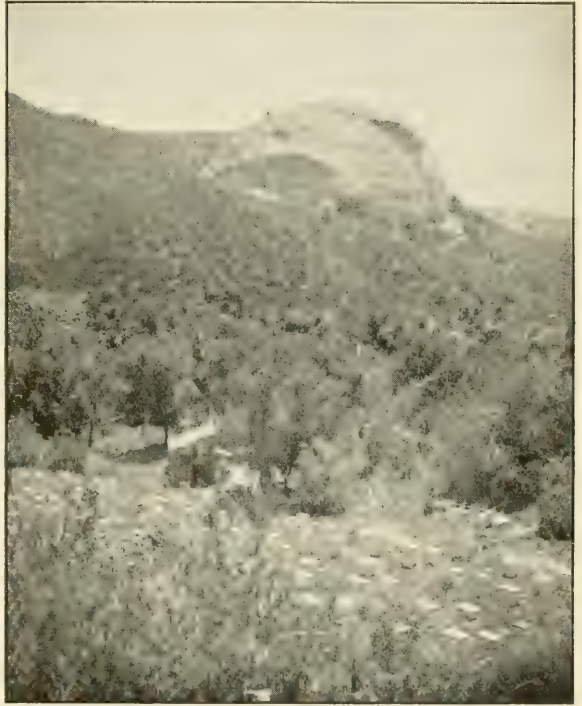
The apiary is located up on the mountain-side, and the bees of it, like all California bees, were very cross; and as I had neglected to bring along with me a veil I had to "stand and take it." Even when we entered the door of the honey-house and sampled some of the beautiful, thick, water-white sage honey, the rascals would even go through the door and attack us there.

As we strolled through the apiary, Mr. McNay said he had something he wished to show me, and so together we walked up the mountain-side, and every now and then I would run into the Spanish needles, and—oh the exquisite pain these give to a tender-foot if he is not careful! The old residents have a respectful fear of these needle-points, and are always careful not to run into them. It was not long before I learned to look before I stepped.

As we clambered and climbed we finally reached the mouth of a genuine bee-cave where the bees were flying in and out. It had never been explored, and no one knows how many tons of honey are stored back in the dark recesses. To give you an idea of

the size of the entrance I asked Mr. McNay to sit down by the side of it while I took a couple of snap shots, and I here reproduce both of them. Those ugly bees from the yard followed us up there, and were stinging us right and left; but McNay, the old hardened veteran in the business that he is, paid no more attention to the stings than he would if the bees had been so many flies following us about. Even while I was taking the picture they were peppering him, and the pictures show how well he can stand "under fire." Even his eyes and bald head seemed to be objects of their wrath.

I have run across many veterans who could take stings without wincing; but McNay



FRANK M'NAY'S EAGLE ROCK APIARY, CALIFORNIA.

beats any man I ever saw. I can stand a few stings; but when it comes to taking them without smashing the rascals, that is something I can not do. If my lens had been a little more powerful I think I could show you the bees on his bald head, and even the bee-stings.

I must not close without mentioning a remarkable feat performed by Mr. McNay in the production of a lot of honey. While in Wisconsin he took 250 colonies of bees into the northern part of the State, and secured a *carload* and a *quarter* of basswood and willow-herb honey. I doubt if such a record in migratory bee-keeping is equaled.



SOUTHWEST TEXAS AS A BEE COUNTRY; A
FRIENDLY NOTE OF WARNING TO
NEW COMERS.

I have been noticing the recent prominence given Southwest Texas as a honey country, in the bee journals; and fearing that some one would come here without a fair conception of the facts has prompted me to write this note of warning. It is a fact that Southwest Texas is a good bee country, and that, although some localities, like Uvalde, Bee, and Wilson Counties, are now well stocked, there is a good deal of room yet in unoccupied territory. The bee-keepers here heartily welcome all bee-keepers to come and join us, believing that "the more the merrier," and in the universal brotherhood of man, especially of bee-keepers.

Southwest Texas, as, indeed, does almost all of Texas, prides itself that it is not afflicted with that dread disease *foul brood*. I personally have never yet seen a case of it, and wish to say that I do not want to; neither do the bee-keepers here want any of it, and they will go to any extreme measure to keep it out. We wish to request that all be careful and bring none of it here or else the bee-keepers already here will make them wish they had not. I have heard them say that, should a man bring it here, his bees would be burned and himself drummed out of the country, and I believe they would do it, and could you blame them?

I insist that their view of the question is eminently right and just to all concerned; and although I hope the disease will never be brought here, I for one can be depended upon to use any or all measures for its eradication. We do not wish to seem harsh, nor to make any one feel in lisposed toward us; but we wish all to be in possession of the facts. I hope to see the day when all this great country will be filled up with live up-to-date bee-keepers, and all this vast amount of honey that is now going to waste saved. I shall be glad to give any facts, in regard to this country, to all interested; but remember, however, that all bitters have their sweets, and we would rather have you investigate in person.

H. H. HYDE.

Floresville, Texas, March 6.

"SIXTEEN THOUSAND FIVE HUNDRED DOLLARS."

The above is a strange heading for an article for GLEANINGS; but as some bee-keepers don't have that much, I head this article with the above amount. It was in the summer of 1890 that I took a trip to that Texas bee-man's land, "the honey Eldorado, or Klondike," that the editor is telling us of (wish he could have been along).

I was with Major H. H. Boon, the law partner of Congressman Hutchinson, of fame. The two had secured a judgment against the Santa Fe R. R. Co. in favor of J. Butler Terrell, who was badly smashed in a railroad wreck, for the sum of \$16,500. The railroad company had given the shrewd lawyers land in that paradise that the editor of GLEANINGS wrote about, and they unlocked the hidden secrets of that paradise for four hundred years, revealed to man what had been, as well as we can look at the future by the light of the past; then the lawyers saw it, and sold the land, and held judgment for what it failed to pay. Armed with sharp crosscut saws the modern man sawed the mighty oaks down, and read in their "growth-rings," under the microscope, Nature's hidden secrets—secrets that had been buried as far back as four hundred years—buried in the mossy oaks to be read by progressive man. Very dark and gloomy is the record—periods of dry years back for four hundred years is the story—periods of wet years or rainy years—honey years—and then what? Death and desolation—a burning desert, strewn with dead and dying animals; no grass, no water, no vegetation, a desert creeping and crawling with venomous snakes, the deadly rattler, that leaves his mark everywhere in the dry sand. Tanks all go dry, wells go dry, and people flee for their lives. I had an old schoolmate who struck the desert period with a loving young wife, two little ones, and five thousand in cash. He was a bright, happy, hopeful young Christian. His name is Cohen Harris, and his tales of drouth, death, and misery would fill more than a full copy of GLEANINGS; but at last every cent of his five thousand was gone, and he left that paradise an old man in only a few years, and that will be the history that GLEANINGS will give if it lives to chronicle the history of that country for the next twenty years—and it may be much sooner than that—that the bees "go dead" along with cattle and other animal life.

So, lookout, paradise hunters, as your paradise may be only burning desert, as history is said to repeat itself, and the history in those old mossy oaks can be read by any one who cares to read it.

Caimito, Cuba. W. W. SOMERFORD.

GRADING RULES OR SUPPLY-DEALERS—
WHICH?

I believe that every producer of comb honey is anxious to produce the grade that will bring the highest price in the market—the fancy grade—and also that, when he has carefully graded his product, and has marked it "fancy," he wants to be sure that it is fully up to the rules which govern that particular grade. It is a deplorable fact that, with the surplus-appliances advertised and recommended by the supply-houses of the country, no one can produce really fancy comb honey according to the rules adopted by the North American Bee-keepers' Association.

It is evident that something is wrong. Either the standard for the fancy grade is too high or else the surplus-appliances are not up to the standard required to produce a really fancy grade of comb honey. I believe the standard for the fancy grade, as originally adopted, is not too high; in fact, it could be higher. The fancy grade should be just what its name implies in every respect. Not only the honey should be fancy, but also the wood which surrounds it. I have seen honey in the market in sections that were soiled and dirty, while the honey they contained was really fancy; yet who would think of classing such as fancy honey? No amount of scraping or sandpapering would ever make them presentable. What is the use of going to the expense of buying snow-white sections if the "fancy" grade admits any old section, no matter how soiled, only so it is well scraped? I believe that, instead of lowering the standard of fancy honey, and, by so doing, cheapening that grade just to omit our imperfect appliances or implements, it were far better to raise the standard of our supplies so that we can produce a really fancy grade of comb honey, or else be content to place our product in the grade in which it belongs.

Justice to those who will produce a really fancy article, and expect a fancy price, demands that we do this instead of forcing them to compete in price with a grade that has been cheapened by lowering the standard of that grade. By using the wide frame or section-holder, with quarter-inch top-bar in connection with the plain section and fence, the sections, when filled, will be as clean outside as when they left the sandpapering-machine, and no scraping is required to permit them to pass as unsoiled by travel-stain or otherwise.

Wakeman, O.

J. E. HAND.

[As I understand Mr. Hand it is not that supply-dealers put out poor supplies, but that bee-keepers buy second-quality sections or use out-of-date appliances to such an extent that the quality of the comb honey put out is affected. If such a policy saves a fraction of a cent, and depreciates the honey one or two cents, it is penny wise and pound foolish.—ED.]

THE AMOUNT OF WAX IN OLD COMBS.

Your answer to Wm. Bloch's question, p. 198, sets me all on nettles. "Under ordinary circumstances" you would not be surprised if he did not get even half a pound. Whew! I should like to get a ton or two of slumgum after he had gotten out his half pound. I would get about 5 pounds to his half pound.

Let me tell you what I did twice, as an illustration: Some years ago I helped a friend transfer a small box hive, capacity about equal to eight L. frames. We saved and transferred all of the straight comb, considerably over half; and as he wanted a little wax I took the leavings home to

melt up for him. I took a large cast-iron stove-kettle, with a small hole in the bottom, and put it in the oven, with a tin spout to carry the wax out at the partly open door. I allowed it to drip out all it would, and got 2 lbs. of wax out of not over four L. frames of *very* old black *natural* comb.

The other case happened last fall. I bought nine colonies. Four were in ten-frame L. hives, two in nine-frame Biehl hives (about the same capacity as nine L. frames). One was in a two-frame Dibbern hive, and two in box hives of about the capacity of twelve L. frames. There, we have about 92 L. frames, or their equal. Now for the result:

First, I found about 25 nice straight L. frames, which I set into my hives. Then I cut all the rest out and extracted the honey; then I filled 24 L. frames *full solid* with rich straight combs, which left about 43 L. combs and the cappings for wax. I expected about 10 pounds.

I took a 50-lb. lard-can, and inside put a wire-cloth basket. In the bottom, near one side, I had a small hole for the wax to come out at; and directly opposite in the side, near the bottom, I made a hole to take the spout of the tea-kettle. I turned on the steam; and after all was in, and hot, I applied about 300 lbs. pressure as long as the wax would run. The result was 19 lbs. of nice wax.

The next time you have the opportunity, examine some old black comb, or melt a small piece. That blackness and weight are not all dirt. It is rich in wax.

Swedona, Ill.

S. F. TREGO.

[I am sincerely obliged to you for the correction. When the matter was up some time ago I remember that half a pound of wax was the amount we got out of a certain amount of comb; and when I dictated the answer I was under the impression it was for the whole hive; but since you call my attention to it I now recall that half a pound was the amount per comb, on the average. I find that C. G. Ferris, a man who has had a wide experience in rendering up old comb, on one test with some old wormy combs secured about 6 ounces per comb. Mr. F. A. Gemmill, of Canada, in another experiment, took about 8 ounces to the comb, and there are other times when more can be obtained.—ED.]

LABELING COMB HONEY.

Mr. Root:—I believe the wholesale buyers of comb honey and the commission men are largely responsible for the artificial-comb-honey lie getting a start. They don't want the producer of the honey to put his name and address on any honey they handle, not even upon the case in which it is shipped. I believe the lie would never have started if all the best grades of comb honey had borne the name and address of the producer. The consumer would have much more confidence in its purity if the producer's name was upon the honey he

buys. I believe nothing would *restore* confidence in the purity of comb honey sooner than to have every producer of comb honey place his name and address upon every section of his best grades.

D. I. WAGAR.

Flat Rock, Mich., Mar. 11.

[There is some truth in what you say. But this is the contention of the commission man; and, for argument's sake, suppose I am that man. I have sold, we will say, a good deal of Mr. A's honey—a very fine honey which bears A's stamp. My customers are well pleased with it, and call for more of the same brand. I get out, and can't get any more because A is sold out. I may have tons and tons of B's honey that is just as good, or better, bearing the brand of B. I ship it, and my customer "kicks," retorting that he ordered honey branded with A's stamp. The point is here: If *neither* A's nor B's honey had been branded or stamped, the B lot of honey, of the *same grade and quality*, would have passed muster readily. But, taking it all in all, I am rather of the impression that, if all comb honey were labeled by the producer, it would have a strong tendency to bring about confidence in that product. If Mr. A can produce an extra-fancy grade of honey, and certain customers demand it at any price, rather than take any other honey "just as good," why should not A receive credit for his skill, and get a corresponding price? I believe Dr. Miller always sells his comb honey to one man; and, if I am not mistaken, that man is willing to buy his crop in advance. Why? Because he knows that Dr. Miller's honey is always of a certain quality and grading.]

There is a great deal to be said on both sides of this question; but I think the weight of the argument is in favor of labeling or branding. It certainly would redound to the credit of producers to put up a fine quality of goods. There is not a doubt that such honey would bring a higher price in the open market.—ED.]

VENTILATION AND DAMPNES IN BEE-CELLARS. REPLY TO G. M. DOOLITTLE.

Mr. Root:—I have just read Bro. Doolittle's review of my ventilation article, and find no complaint to make. However, it would be a great pleasure to know if he ever recommended the experiment of wintering, indoors or out, bees with from only 5 to 10 pounds of honey. I get some general facts regarding bees from Mr. O. J. Hetherington, and have not in mind now that bee-keepers in Eastern New York have ever so recommended.

It is not impossible that the weight of ten feet of dry pine lumber should have doubled in weight in Mr. Doolittle's cellar, and contributed very materially in balancing the loss of honey between the dry hives put in cellar and the "equal to green" taken out. Practically, 5 or 10 lbs. honey consumption

will not prove to be the weight recommended for safe wintering.

I like the allusion to trouble incident to ventilation. The plan I have adopted as an experiment would render the experiment useless, rationally considered, if no notes of temperature and conditions had been observed. Would bee-keepers have been any better informed had GLEANINGS made no mention of the bees under the machine-shop?

I have doubts about the arrangement I made in my flue for closing it. I am not sure that closing it would have raised the temperature. I have never closed it, and don't know. It is generally admitted that dampness lowers the temperature; if so, to have closed it would have defeated the object.

The temperature these warm days ranges from 32 to 45 outdoors. My bee-cellar shows no variation of any account, showing 50 morning and evening, when I pull up out of the top of the cellar my thermometer. I was glad to hear from your machine-shop. We may all be glad to run an engine to winter our bees yet. T. F. BINGHAM.

Farwell, Mich., Mar. 10.

[One thing we have proven is that noise does not disturb bees. And another thing we have proven to our own satisfaction, and that is, that ventilation, and lots of it, keeps the bees quiet.—ED.]

200 LBS. (HALF COMB HONEY) FROM ONE QUEEN.

It was a very poor season here last year. I harvested over 1000 lbs. of honey from 25 colonies. I had one queen that I bought from J. P. Moore, of Morgan, Ky., whose bees gathered 200 lbs. of the 1000 lbs. This Moore stock gathered 100 lbs. of comb honey (white clover), and their queen did not swarm. I had a little over 100 lbs. of extracted from what you call heartsease, which is very plentiful here some seasons. I have had very good success for a beginner, which I give your valuable A B C and GLEANINGS credit for. I could never have been so successful in so short a time without them. The Homes department has been a great comfort to me. L. C. MEDKIFF.

Salem, N. J.

COVERS COVERED WITH CANVAS INSTEAD OF PAPER.

As regards hive-covers, I would give considerably more for one covered with canvas, and painted, than one with Neponset paper on it. One covered with canvas will stand (if painted once in three years), ten times the hard usage that the paper one will. In fact, after it has had three coats of paint when made, you could walk on it and not hurt the canvas. After one has tried the canvas I don't think you could get him to use the paper. F. P. BRIGGS.

Ayer, Mass., Dec. 26.



Thou God seest me.—GEN. 16: 13.

Not with eye-service, as men-pleasers, but as the servants of Christ, doing the will of God from the heart.—EPH. 6: 6.

For the past two weeks I have been exceedingly busy; in fact, I have hardly had time to run over to that little greenhouse to rest up. We have had quite a large run of trade in seeds, and there have been quite a few complications. There have been misunderstandings, and sometimes some good friend who entrusted his money to our care has been wronged, and nobody felt like taking the liberty of righting the wrong, nor even of writing him a pleasant letter of explanation unless I did it myself. Oh how much better we all feel when some one takes the time to explain matters, and assure us he has not been unmindful of our interests! Sometimes it costs money to make things pleasant; but in the greater number of cases, so it seems to me, about all it costs is to take time to assure the one who has been wronged (or who has got it into his head that he has been wronged) that there was no intention of selfishness, nor even a want of friendly feeling and interest.

During those busy days a man came to me and said he wished I would go out in the woods and measure that wood. At first I hardly knew what he was talking about. Then I did remember that along in the fore part of the winter I told a man he might cut up some beech-trees that were among my basswoods. First I told him I would go out in the woods and show him the trees I wanted him to cut; but as I did not get time I told him to go and cut down all the beech-trees he could find. But I told him I wished he would take them big and little, just as they came, and not pick out the easiest ones to convert into firewood. Then I forgot all about it. He and his boy had been at work more or less all winter, and had put up 25 or 30 cords. I took my wheel and rode up the railroad track about one mile, and then I left the wheel over in the lots, out of sight, and got over into the woods. I took my tape-line out of my pocket and measured the height of a pile of wood. It was a little more than four feet. When I took the length I found it a little more than eight feet. The next cord turned out the same way, and pretty soon I began to look smiling and happy. Do you know why? Because I have had so many disappointing experiences in setting people at work away off in the woods or fields out of sight I fear I have become a little discouraged. I have not lost my faith in God because of my disappointments; but I fear I have come pretty near losing my faith in poor infirm humanity. I went along to pile after pile, with the same result—the measure overran just a little. When I

found two piles that had been tipped over I said to myself, "Well, I am sure there is a good cord there, any way. The man who is doing this work is evidently honest."

Pretty soon I met him and said, "Why, friend, your cords overrun a little in height and a little in length. Is that the way you do business?"

"Yes, Mr. Root, I always try to give good measure. I wish to do so because, when your eye comes to look it over, I don't want you to be disappointed. But there is one thing I am still more anxious about. I profess to live believing that there is an *all-seeing eye* away up above us all that looks down and watches over us. I want to give such measure as will be pleasing in *his* sight."

I need not tell you that this was one of my happy surprises. Oh how much good it does us—how happy it makes us feel (and I am *sure* I may say *all* of us, and every one who reads these pages), when we come across somebody who *recognizes* God's watchful eye, and tries to have his work right and honest in God's sight! When a man has this feeling in his heart he does not need watching. All anxiety and solicitude on your part are at an end. You can, with perfect assurance, entrust him with the care of your property, your money—yes, even your good name. And what a restful feeling it gives one when he finds such a person!

Now, what I am saying would seem to imply that I am myself (*of course*) just one of that sort, but I am afraid I am not. I am afraid that, if I were sawing and splitting that hard tough beech that grew partly in the clearing, I should not have given as good measure as this man of whom I have been speaking. He said he did not make very big wages, and some of his friends laughed at him for going ahead with the job; but he told them he had promised to cut some 25 or 30 cords of wood during the winter for me, and he was *going to do it*. The bargain was, he was to have 60 cts. a cord. I told him I did not like to be outdone in giving good measure, and so I suggested that we make the price *65 cents*.

If *every* man were upright, and tried to be honest before God, I presume we should not appreciate these gems among humanity. After I have been obliged to be among a crowd of cursing and swearing men, I appreciate clean men as I never did before. After I have had some very trying experiences with a helper who is cross and contrary, I value all the more those who are willing, cheerful, and obliging. In fact, I am not sure but it *does us good* to have to get along for a while with disagreeable people, so we can justly and truly appreciate God's *noble men* and *noble women*.

Now, I dislike to say so much about the *bad* side of humanity; but I do not know how I can give this man of whom I have been talking full credit without telling you of some of my discouraging experiences. I bought this piece of woodland near our

home mainly for the basswood-trees growing on it. There are thousands of them, large and small, and I wanted the other timber out of the way. When I talked about getting a man to cut it into cordwood my neighbor said there was nobody who would cut wood (by the cord) nowadays. They used to do it in olden time, but it was too hard work. When it became known, however, that I wanted somebody to cut wood by the cord during winter, a man volunteered to do it for 60 cts. per cord. The old price had been 50. I am speaking of 18-inch stovewood. I told him I would not only give 60 cents but I would give 65 if he would take every thing as it came, little and big. He agreed to this, and I told him to begin nearest the road until I got around again. A few days later I found he had gone away off to the back part of the woods, and, in fact, across the line, and had cut down some nice beech-trees on *another man's* land! When I remonstrated he admitted he had disobeyed orders, and had *not* worked according to contract, giving no other reason for not keeping his word than that "no man could make a living" in cutting such trees as he found where I had directed him to start in. Of course, I could have refused to give him any pay for cutting wood on land that did not belong to me, contrary to orders; but he is a poor man, and so I called it a mistake, and paid him just the same, and now I have got to fix it up with my neighbor as best I can.

Let me give you one more illustration. I wanted some plowing done. A man with a big stout team said he would do it if I would give him \$3.50 a day. While I went along with him and helped to get the bushes and stumps out of the way he did a very good day's work. One day, however, I was obliged to be absent. I told him I did not expect to be back till night. Unexpectedly I got back in the middle of the afternoon. When just in sight of the field I caught a glimpse of him disappearing with his team over the hill. As he said in the morning he had a bad headache I concluded he had decided to put in only three-fourths of the day's work. When he came to settle up, however, he insisted on having pay for a full day's work. Now, one does not like to be small and close, especially about trifles; but where one lets a good many things of this kind pass, thinking it is not of sufficient importance to make a fuss about, he finds himself, finally, where his crop *costs* more than he gets for it. "Eternal vigilance" is not only the price of liberty, but it is the price of success in almost any work. Lots of boys—yes, I might say lots of men—will do very well—yes, I may say tiptop—as long as their employer goes right along with them; but there are not very many (and I say it with sadness) who have more regard for the all-seeing eye of the great God above than they have for any human employer. It is praiseworthy, no doubt, to have somebody who tries hard to have his work make a good

showing before his employer when night comes; but, oh how much more praiseworthy it is to find one who has the faith to believe (and let his daily actions show that belief) that it is more important to have every thing right in *God's* sight than before any human being! What a millennium it would be here on earth if we had people of that sort!

I have had many kind and encouraging words because people have found that I, even while alone and unwatched, strive to be honest and unselfish; but, to tell the truth, I do it only by fits and starts. The voice of conscience and the influence of the Holy Spirit (perhaps both are one and the same thing) are constantly *prodding* me. I do not quite like the word, but I do not think of another that will express it. It is as natural for me to be selfish as it is to breathe, and I find myself almost continually yielding to it if I do not look out; but that better spirit comes in, at least occasionally, and may God be praised that it comes occasionally, if not always. Let me illustrate it by a little story which I think bears on this point.

I told you about the dogs and cats, how they annoyed me. The neighbors said, "Shoot the cats and the dogs too." They said the law would uphold me in so doing—it was my duty. But, dear friends, suppose one of you should visit me. Suppose you should see A. I. Root, the author of these Home papers, with a pistol in his hand, trying to shoot a cat! I presume it would be only *trying*, for I never fired a pistol in my life—that is, I do not remember that I ever did, and the poor cats would stand a good chance of not getting hurt at all. Suppose, however, I should be lucky enough to hit one, and it should drag itself away in terrible suffering. No, no! I am 62 years old, and have never fired a pistol so far. I may possibly commence, but not on a cat or a dog, God helping me. Well, the cats drove away the poultry from their cold victuals, and then I drove them away with corncobs; then I threw ears of corn; but they looked up in my face confidently, and seemed loath to believe that I had any very wicked feelings toward them. A nice little hammer hangs up on a nail near the door. One great ungainly cat bothered me by breaking the glass in my poultry-house in order to get in. You may remember that I remonstrated with the boys some years ago because they could not make the chickens stay away from the plant-beds. I told them if they would give the chickens a *good* scaring they would go away and *stay* away, and I gave them an example of how it was to be done. I frightened the flocks of hens, roosters and all, so they cackled about it nearly all the rest of the afternoon, and they did not come near our plant-beds for weeks afterward. Well, one day when I was sorely tried by this cat I declared I would give it such a scaring as I did the chickens. I took the hammer off the nail, and, remembering my practice with an In-

dian tomahawk when I was a boy, I took aim at the cat's head. The hammer whizzed through the air and struck the cat fair and square on the side of the head. The poor thing just rolled in agony, and gave me such reproachful looks I could not get over it. The voice of conscience I have been telling you about then commenced:

"Now, old fellow, are you satisfied? A few days ago you had the toothache and the earache; but probably all the pain you suffered then was not a comparison to the suffering you have deliberately inflicted on this poor dumb brute. It is winter time, and poor pussy was very likely starved into being bold. You, with your possessions, could doubtless feed all the cats in Medina County, and not be impoverished either. Is it really true that, with all the abundance you have around you—an abundance that God in his mercy has entrusted to his care, you can not allow even this poor cat a meal of the cold victuals you bring out to the poultry?"

Conscience kept on, but I think I will not tell all it said. I would gladly have patted poor kitty on her head and tried to explain to her how sorry I was. When she got a little better she slipped off among the evergreens to get over her pain the best she could. Now, I would have given a good deal to have that foolish act undone; and when the cat came up next day to get her share of the cold victuals, apparently as good as ever, and certainly not cherishing any unkind feelings toward me, it rejoiced my heart.

Suppose, dear friends, that some power beyond us could help us to see all our faults and littleness as the loving eye of the great Father above sees it all, what a different world this would be! As I think it over while I study the problems that beset this great nation of ours, I pray again and again that the influences of the Holy Spirit *may* shine into our hearts, each and all, and help us to see the folly of heaping up dollar after dollar when not even the smallest fraction of it can be carried along when we die. It is true, we may heap it up and leave it to our relations; but a great many times of late I have thought it would be far better for said relations if the deceased had put the money to some good use before he died, instead of leaving it to them to wrangle over, and possibly give it all to some lawyer who is too lazy to work for a living.

And now, friends, can we not get an example from the man who was cutting down tough beech-trees, and splitting them into firewood for 60 cents a cord? If he in his tough job—a job that took an unusual amount of strength—could afford to give *good measure*, so that his daily tasks might be pleasing in the sight of God, can not we, each and all, at least *strive* a little harder to do *our* work in such a manner that we are sure God is pleased when he looks down lovingly on us? And can we not have faith enough to *believe* our other text is true where it says, "Thou God seest me"?

Tobacco.

GETTING A "RAISE" IN WAGES—CIGARETTES.

Every ambitious young man or woman in our employ is looking forward to advanced pay—that is, I hope they are. I would not give much for a boy or girl who did not have some ambition and enthusiasm in this matter of advanced wages. Daily we are called on to discuss the matter. A boy—we will call him John Brown for illustration—goes to his foreman and says he has worked a long while at 12½ cents an hour, and asks if he is not worth a little more. I do not know just what the foreman does, but I presume they talk the matter over more or less, and the foreman refers the matter to one of the firm. The reply is usually something like this:

"If John Brown is worth more money than he is getting, all things considered, of course he should have it. We are always glad to hear that any of our employees are worth more money than they are getting. This young man is diligent, capable, and is making progress, is he?"

"Why, yes; reasonably so."

"Is he on hand every time when the machinery starts?"

"Well, to tell the truth he is not. A good deal of the time he is half an hour late, and sometimes a whole hour."

"Have you talked with him about this? Can he give any good reason for it?"

"Yes, I have talked with him about it; but he does not seem to do much better."

"Do you know whether he is out nights? Has he any bad habits?"

"Why, to tell the truth, I think he is out nights; but I do not know that he has any bad habits except smoking cigarettes."

At this perhaps there is a smile on both sides; may be it is a sad smile on both sides—I rather hope it is. Later on John Brown is interviewed by the senior member of the firm.

"John, is it really true that you are smoking cigarettes?"

"Why, Mr. Root, I will not tell any lies. I do smoke cigarettes; but I am not smoking now as many as I used to."

"John, you surely know what the papers and almost everybody else is saying about cigarettes. Do you read a daily paper?"

John shakes his head.

"Haven't you heard that, since the Chief of the Weather Bureau has set the example, quite a number of manufacturing firms are declining to employ boys who persist in cigarette-smoking? Haven't you heard of that?"

"Never heard of it."

"Well, you surely have heard that some of our leading physicians say that every cigarette a boy smokes is one nail more in his coffin."

John smiles at this, and says he has heard it. He further adds that he will try hard to be on hand promptly when the

whistle blows; but he does not promise to give up cigarettes.

Now, I do not know that I am able to decide, just now, *where* our duty lies right here. I do not like to lay down cast-iron rules. I would a hundred times rather use some means to induce the boy or boys *themselves* to agree to what we feel is best for their interests and ours; and I think I shall leave this question right here.

Under circumstances like the above, should John have an advance in wages? If he does his work as well in every respect as others who have more than 12½ cents an hour, very likely he should have more. But in the cigarette business he is harming others. He has admitted to me that he can not buy cigarettes here in Medina. He acknowledges that he has to send away to get them. Well, to save expense the boys usually club together and send off for a supply, and therefore he must do a little canvassing. He hunts up other boys who want them, or recommends them to other boys so they can save expense by buying them by the quantity. Ought a boy, under such circumstances, expect promotion, *especially* if he is working for The A. I. Root Co.? Instead of answering this myself I wish to get the opinion of our helpers generally. Is John worth as much money as the one who has not got into the cigarette habit, leaving out for the time being this other question about being on hand when the whistle blows, or a little before?

"We are marching on."

Do you wonder what called forth the above? Well, it is the contents of a postal card just at hand.

Gentlemen:—Please give us advertising rates and discounts; also state whether you have any objection to liquor ads. Please mail us sample copy, and oblige
Yours truly, GINSENG DISTILLING CO.
St. Louis, Mo., Mar. 13.

How does the above indicate we are marching on? Why, this distilling company frankly admit that some periodicals, we do not know how many, are refusing to accept "liquor ads." May God be praised for this much. And now, friends, I will tell you what we, the people who support these periodicals, are to do. Look the advertising pages of your home paper all over. If you see any thing in it that even indirectly helps advertise the liquor business, make a protest to your editor, and have the *paper* stopped if he does not *stop* the whisky advertisements.* If all Christian and temperance people would do this simple thing that I have suggested, it would clean our advertising pages pretty thor-

*I wish the editor of every periodical in the land could read what that exceedingly popular book, "In His Steps," has to say about receiving advertisements of whisky, tobacco, etc.; and it is gratifying to know that, notwithstanding the bold stand this book takes against these things, it is having and has had a larger sale than any other book since Uncle Tom's Cabin came before the world. This would seem to indicate that there is a hungering and thirsting after righteousness—yes, even among the great masses of the common people. May God be praised for such a book, and may it still continue to go "marching on."

oughly of this disgraceful sort of advertising. Will you not help us in the battle for righteousness, temperance, and purity? Just one thing more:

What kind of a distillery is the *Ginseng Distilling Co.*? Is the ginseng industry being hitched on to the whisky business? A very good friend of mine, and an expert chemist, has recently written me that the *sole reason* why the Chinese pay such extravagant prices for ginseng roots is that they have a notion or superstition that it tends to stir up the lower passions. If this is true, every good man and woman should let it alone, just as they would let—well, we will say just as they are now making up their minds to let tobacco alone. Still another thing:

I guess I might as well admit right here that even *Gleanings* was entrapped into accepting the advertisement, for a time, of the Heller Chemical Co., Chicago. One of our veteran subscribers called our attention to the fact that that company sent in their catalog an inset sheet of pictures in colors of fancy demijohns containing "rock-candy whisky," and a long list of liquors with fancy names. Of course, at the head of the sheet they declared these liquors were never sold to anybody except for "medical uses." But they were pushing their wares with most extravagant advertising. How do they know—or, better still, how much do they *care*—who sends for it, providing they get the money? Another note at the bottom of the sheet says the packages are very carefully done up, so that no one can see or even guess the contents—as much as to say, "You church-members and temperance people who would like some nice whisky, but are afraid to have people know about it, can get it from *us* 'on the sly,' and nobody in the world will be a bit the wiser."

THE FUTURE OF THE TELEPHONE — RURAL TIMEPIECES.

The following extract from the *New York Independent* suggests what may be done with a rural telephone, if it is not being done already.

New services for the rural telephone are constantly being devised. One of the most interesting and advantageous is the "News service." Every evening at seven o'clock all the farmers in a group, or in a circuit of groups, take their stand at the telephone. There will be a ring, and then the opening call, "Good evening! now keep quiet! It is one minute and a half after seven o'clock by the regulator." Every farmer at once regulates his watch or his clock. When this is done the call comes again: "Weather indications for the next thirty-six hours are: Cooler and cloudy, with probable rains;" or, "Weather clear and warmer." Then come market quotations. The price of corn, wheat, oats, rye, butter, chickens, eggs, apples, and whatever else the farmer may have in season, is announced. Then come news items, such as constitute the main headlines of newspapers.

The part about having farmers keep a uniform and standard time commends itself particularly to me. I suppose you all know how it is, or, perhaps I had better say, how it used to be, with timepieces in the country. There are no two alike. When I was up at

our ranch in Michigan last summer I let my watch run down, and wanted to catch a train. I rode through the rain so as not to be too late, and pretty nearly used myself up with over-exertion, and then found I was *an hour* ahead of time. The farmer's clock, eight miles away from the station, was a whole hour out of the way, and this thing has happened to me several times. Yes, I know we have a lot of contrary, stubborn farmers, who, if they *could* have the correct time by telephone, would insist on setting their clocks by the sun, saying sun time is "God's time," or some such foolishness. Hired men come to work before the correct time, and oftener away behind, just because there are no two timepieces alike; and this clumsy and slipshod way of setting clocks costs the country at large thousands of dollars yearly. There can be no sharp promptness such as banks, railroads, and great business corporations *must* have, without uniform timepieces. May God be praised for the telephone on this account if for no other—it enables us to correct our clocks and watches, at least once in 24 hours, so we can have them all pretty nearly, if not quite, "on the dot."

ALFALFA CLOVER SEED SPECIALLY ACCLIMATED FOR COLD REGIONS.

Mr. Root: I have been much interested in all that you have published about alfalfa, but the half has not been told about it. No doubt if more farmers knew just how to plant the seed, and could be conveniently supplied with good fresh seed, more would be induced to try a little piece. To that end I am willing to go half way and help them out. Though I am hardly able to furnish seed free and pay the postage, I can send seed if they will help pay the postage, so it will not be all a matter of labor of love.

I have a quantity of nice fresh seed from Nevada, a high, cold section where the thermometer goes down to 20 below zero, and I consider such seed much better for the colder sections than seed matured in a warmer climate.

I inclose 30 cts. for insertion of three lines in your Wants and Exchange column, and wish that you would give me—one of your old twelve-year subscribers—an editorial note on the subject.

This is a magnificent section of the State for our bees, and thousands of acres of the best pasturage. Why is it so neglected in your columns? I have never seen an item from our vicinity in GLEANINGS since reading it.

WILLIAM C. AIKEN.

Angwin, Cal., March 14.

Friend A., I am glad to give an old subscriber, or anybody else, encouragement in introducing new and improved seeds; but I am afraid you are undertaking to be *too* liberal. Permit me to suggest that you send 10 cents' worth of seed for one of the dimes, and use the other to pay postage—see page 305. You may get snowed under with applications if you undertake to be too liberal, and I think you had better have a little printed slip to go with each package of seed, telling the farmers how to sow it and how to manage it. Here and there we have patches of it in Ohio; and after they once get a stand it seems to hold its own for many years—that is, if it is cut at the proper time and managed right.

ONLY 20 LEFT.

We have left some of those slightly damaged copies of Prof. Cook's "Bee-keeper's Guide" that went through our fire a year ago. The reading matter is all right—only the cloth covers are somewhat damaged. Price, to close out, 60c a copy, by mail; or, with weekly *American Bee Journal* a year, both for only \$1.40. Regular price of the book alone is \$1.25. Big bargain where you get both book and *Journal* (52 copies) for \$1.40. Better order quick if you want book on either these low offers. Now is the time to begin to read the *American Bee Journal*. It will continue to be a great paper in 1902. And it comes *every week*.

We are headquarters in Chicago for Root's Bee-keepers' Supplies. Catalog, and sample of *American Bee Journal* free.

GEORGE W. YORK & CO.,

144, 146 Erie Street, Chicago, Illinois.

MICHIGAN

HEADQUARTERS FOR

**C. B. Lewis Co.'s
Bee-keepers' Supplies,
Dadant's Foundation.**

Be sure to send us your list and get our prices before ordering elsewhere. DISCOUNTS on early orders. Send for our 48-page catalog.

L. G. Woodman, Grand Rapids, Mich.

HONEY QUEENS!

**Laws' Long-tongue Leather Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.**

Laws' queens are the standard-bred queens of America. The largest honey-producers use them and praise them. Laws' queens go everywhere, and can furnish you a queen every month in the year. Four apiaries. Queens bred in their purity. Prices, October to April: Tested or untested, \$1.00 each; 6 for \$5.00. Breeders, none better, \$3.00 each. Address

W. H. Laws, Beeville, Texas.

To make cows pay, use Sharples Cream Separators. Book "Business Dairying" & cat. 288 free. W. Chester, Pa.

The best article ever published in the Bee-keepers' Review, according to the judgment of many who took the trouble to write and express their views, was contributed in March, 1901, by Mr. S. D. Chapman, of Mancelona, Mich. He outlined a system peculiarly adapted to his locality and needs. A leading feature was the removal of the queens at the opening of the honey harvest.

He has now contributed another article, and it appears in the March issue for this year. It discusses the swarming-problem, and it seems to me that he gets nearer the bottom facts of the matter than has any other writer. He shows clearly *why* bees get the swarming fever—how it can be avoided, or how brought about. So thoroughly does he understand the matter, that he has been able to so make up a colony that one-half of it will swarm, leaving the combs deserted, while the other half will refuse to budge. This issue also gives some very novel and original hints and illustrations on hive covers.

Send ten cents for this issue, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the holder to the Review for 90 cts.

W. Z. Hutchinson, Flint, Michigan.

Listen, Bee-keepers!

The Lone Star Apiarist

A new bee-journal in the great Southwest, the Texas bee-keepers' paradise.

It will tell you of more glorious fields in the counties south of Uvalde, superior to and more abundant in honey-yielding flora, promising to be one of the greatest honey-producing sections in the world. With flowing wells, and the planting of fields of alfalfa in addition to the fine natural resources there already. Its editor will tell about his extended trip through this wonderful land.

Subscribe now, \$1 a year. The *Apiarist* is not only for the South, but for all America and foreign countries too. Our company has purchased the *Southland Queen*, and now we have the only bee-journal in the South.

THE LONE STAR APIARIST PUB. CO.,

Louis Scholl, Editor.

Floresville, Texas.

10 CENTS

That's all it costs to get acquainted with the

Rocky Mountain Bee Journal.

We want to send it on trial to every reader of *Gleanings* **Three Months for 10 cts.** This vigorous young monthly has just entered its second year on a **paying basis**, and has become the recognized mouthpiece of the bee-keepers of the great Rocky Mountain alfalfa regions. Address

The Rocky Mountain Bee Journal,
Box 611, Boulder, Colorado.

NONE BUT THE BEST QUEENS

ARE GOOD ENOUGH FOR ANY ONE.

No bee-keeper wants to give hive room to inferior bees. The best queens fill their hives with brood. The best bees fill their supers with honey. Every bee-keeper knows this, but does not know that *our strain* of Italians are in the *lead*. Try them. You will not be disappointed. Choice tested queens, \$1.00 each. Untested, 75c; \$8.00 per doz. Send for price list.

J. W. K. SHAW & CO., Loreauville, La.

1902 Queens

from the best strains of either three or five banded Italians. Untested, 85 cts. each; tested, \$1.25 each; breeders, \$3.00; 1-frame nuclei with warranted queen, \$2.00; 2-frame, \$3.00. Bees and queens ready to mail any day. My bees are selected from the very best strains that money can buy. I make a specialty of queen-rearing and fill orders promptly. I insure safe arrival of queens. This is a postal money-order office. Remit with money-order to

DANIEL WURTH, Caryville, Campbell Co., Tenn.

1902 ITALIAN QUEENS.

From imported and home-bred mothers, by up-to-date methods. Tested, \$2.00 Untested, \$1.00; six, \$5.00; twelve, \$9.00. Full colony, \$6.00; three-frame, \$2.00; two-frame, \$1.50; add the price of queen. Discount on large orders. Write for circular.

Rufus Christian, : Meldrim, Georgia

Headquarters for the Albino Bee.

The Best in the World.

If you are looking for the bees that gather the most honey, and are the gentlest of all bees to handle, buy the Albino. I can also furnish Italians, but orders stand fifty to one in favor of the Albino. Select tested Albino queen before June, for breeding, \$1.00; tested, \$2.50; untested, \$1.00; Italians, \$1.00. I have located an apiary near Rocky Ridge, Md., and most of my queens will be shipped from there. Other supplies will be furnished from Hagerstown, Maryland. Address me at Rocky Ridge, Md., for queens. S. Valentine.

Minnesota Bee-keepers' Supply Mfg. Co.,
Manufacturers of

Bee-hives, Sections, Shipping-cases, and
Everything Used by Bee-keepers.

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

Minnesota Bee-keepers' Supply Mfg. Co.,
Nicollet Island Power Building, Minneapolis, Minn.



HONEY.

We are still having a fair demand for comb and extracted honey, and trust we shall close out present stock before any of the new crop is on the market. We hope to hear from any in need of honey to supply their trade.

MAPLE SUGAR AND SYRUP.

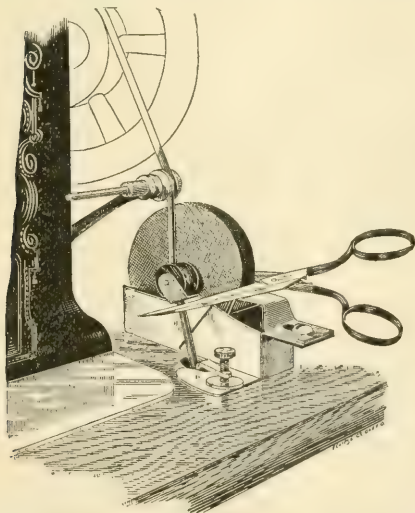
The maple crop is rather light, and the producers are asking good prices for what little we are able to secure. We can not at this writing offer syrup in lots of 5 gallons or more at less than \$1.00 per gallon, or sugar in 50-lb. lots or more at 12 cts. per lb. for best grade. If interested, write us.

BEESWAX WANTED.

We wish again to urge bee-keepers who have combs to render or wax to ship to lose no time in getting it to market. A little later, wax will accumulate much more freely, and the price will begin to go the other way. We have not for years paid as high as we are now paying for wax—29c cash, 31c in trade, delivered here, and you should take advantage of high-water mark in prices. We have been getting in some large shipments, and have enough to keep us running for the present, but will be ready for some as soon as you can get it to us. It sometimes takes a month for wax to arrive from far western points. If you have any to furnish, get it on its way at the earliest date possible. Should you have an offer that nets you more than our price, let us hear from you before you let it go if you can.

HASTINGS SHEAR AND KNIFE SHARPENER.

Here is a little tool that ought to be in every house that possesses a sewing-machine. It is clamped to a sewing-machine stand just where the belt comes through, and is driven by the sewing-machine belt just the same as you drive the bobbin-winder. It has



a wheel of carborundum, about three inches in diameter, securely mounted in a metal frame, with adjustable guide for holding shears, knives, or any of the various household tools that need sharpening. It will pay for itself in a very short time. It can be sent by mail safely for 8 cts. postage, and the price is only one dollar. Send for one, enclosing one dollar, to N. P. Robinson, Wellington, Ohio; and if you don't find it well worth the investment, let us know. If you can sell any to your neighbors, ask for terms to agents. Don't send your orders to us, but send to the address above. We will vouch for Mr. Robinson's honesty.

BUSINESS AT THIS DATE.

Present indications point to a congestion of orders such as we had in 1898. We are now an average of three weeks behind on orders, and some carload orders are over four weeks old. Less than carload shipments we try to ship within a week or 10 days, either from here or one of our agencies. We are doing our utmost to keep up the quality as well as the quantity of our output, and shall have to ask the utmost patience on the part of our customers. We have orders in for eighteen carloads, as well as a goodly number of less than carload shipments. We have shipped so far this season, since the middle of December, 65 carload shipments. The forehanded people who order in the fall or winter what they need for the coming season are the ones to be envied and congratulated in times like this, and imitated in larger numbers in the years to come.

Special Notices by A. I. Root.

Chas. Vanderbilt, Lyons, N. Y., can still furnish Sir Walter Raleigh potatoes, second size, at \$2.00 per bbl.

SWEET CLOVER AT THE OHIO EXPERIMENT STATION.

Press Bulletin No. 223, March 24, of this year, tells us pretty clearly why sweet clover should never be classed with noxious weeds. If you want the bulletin, write to the Ohio Experiment Station, Wooster, Ohio. This bulletin treats mainly of its value for plowing under on poor soils where nothing else will grow. It also explains very clearly why it is rarely if ever found under circumstances where it should be considered in any way even an annoyance to a progressive farmer.

YELLOW SWEET CLOVER.

For the first time we have enough now so we can offer seed of the yellow sweet clover; but as it is scarce and high-priced the price will be, for 1 lb., 20 cts.; 5 lbs. or more at 18 cts. If wanted by mail, add 10 cts. extra for packing and postage. We have seed only with the hulls on. M. M. Baldridge, of St. Charles, Ill., who has tested it for years side by side with white clover, says it is a biennial, the same as white clover, and that it blooms two or three weeks earlier than the white. It is not as tall as the white, but produces a great quantity of bloom. I saw it on his place when I called on him in July, 1900.

FUMIGATION METHODS.

The above is the title of another new book by the O. Judd Co. It treats principally of fumigation by the use of hydrocyanic acid gas. Killing insect pests marks one of the greatest strides ever made in agriculture. Heretofore we have been more or less helpless victims to these terrible scourges. Now, however, by spraying bisulphide of carbon, and, lastly, by the use of this new gas, we are getting to be pretty well masters of the situation. Not only fruit-growers and nurserymen, gardeners and florists, millers and grain-dealers, but the farmers of the country at large, where they keep posted, are getting the upper hand of these hindrances. Wormy apples are a disgrace to the orchardist; and gardeners, seedsmen, and grain-dealers should be ashamed to offer any of their products infested with insect enemies. The book has 313 pages. It is full of pictures. The latter part of it tells all about fumigation with carbon bisulphide. The result of the work of the experiment stations, and the laws in regard to insect pests, are given for the whole United States. I think the book will prove to be a valuable acquisition to our agricultural literature. Sent postpaid from this office for \$1.00.

MAIL ANY DAY.

Orders are now being booked for queens, untested and tested. Golden Italian selected tested, \$1.50. Breeders, \$2.50 to \$5.00. None better.

H. C. TRIESCH, Jr., Dyer, Ark.

"GINSENG"

Magazine Form. 16 Pages.
25c per Year. Sample Copy 5c.
SPECIAL CROPS PUB. CO., Box 603, Skaneateles, N. Y.

SPRAYING

Start Right.
Success depends upon it.
With the "incomparable"

Bordeaux

NOZZLE,

and one of our "World's best" spraying outfits, you will save 75 per cent of the usual loss from insects and disease. We save money for you. Makes Emulsion while pumping. Kills insects and lice on chickens and animals. Made only by

THE DEMING CO., SALEM, OHIO.

Twelve varieties of sprayers. Write for our booklet treating of all kinds of diseases and insects. Sent free.

Write us or our Western Agents,
Hendon & Hubbell, Chicago, Ill.



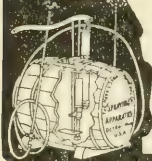
Of Course You Know

all about the advantages of and the necessity for spraying. You may not, however, have known about the best and most reliable spraying outfit on the market.

HARDIE SPRAY PUMPS

have made that kind of a reputation wherever they have been used, and for all classes of work. We make them in great variety, embracing bucket, knapsack and barrel sprayers. Full line of spray nozzles, extension rods and other spraying accessories. Send for free illustrated catalogue. Tells all about pump and vine diseases, and gives formulas for their treatment.

The Hardie Spray Pump Mfg. Co.,
63 Larned St., Detroit, Mich.



FENCE! STRONGEST MADE.

Builds strong, Chicken-tight. Sold to the Farmer at Wholesale Prices. Full, warranted. Catalog Free. COILED SPRING FENCE CO.,
Box 101 Winchester, Indiana, U. S. &



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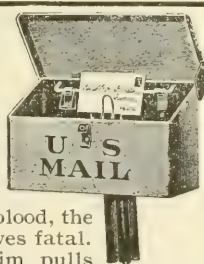
PAGE POULTRY FENCE

weighs ten pounds to the rod. Isn't that better?
Page Woven Wire Fence Co., Box S, Adrian, Michigan.

Stone Bruise.

This is a dangerous disease among Rural Mail Boxes. If the box is light weight, or has (cast) iron in its blood, the disease very often proves fatal. Even when the victim pulls through it will have a pock-marked appearance. The Steel-plate Mail Box is perfectly immune to this disease. Made only by the

Bond Steel Post Co., Adrian, Mich.



RUBBER STAMPS. Send us 25 cts. for year's sub to our 16-p. monthly journal and we will mail you FREE as a premium a two-line Rubber Stamp, or two one-line Stamps, to print any wording you want.

THE FARM AND POULTRY NEWS, Middlesboro, Ky.

Queens!

Buy them of H. G. Quirin, the largest queen-breeder in the North. The A. I. Root Co. tells us our stock is extra fine. Editor York, of the *American Bee Journal*, says he has good reports from our stock from time to time, while J. L. Candy, of Humboldt, Neb., has secured over 400 lbs. of honey (mostly comb) from single colonies containing our queens. We have files of testimonials similar to the above.

Our breeders originated from the highest-priced long-tongued red-clover queens in the United States.

Fine queens, promptness, and square dealing have built up our present business, which was established in 1888.

Price of Golden and Leather-colored Queens Before July First.

	1	6	12
Selected Warranted.....	\$1 00	\$5 00	\$9 50
Tested	1 50	8 00	15 00
Selected Tested.....	2 00	10 50	
Extra Selected Tested—the best that money can buy	4 00		

We guarantee safe arrival to any State, continental island, or any European country. Can fill all orders promptly, as we expect to keep three to five hundred queens on hand ahead of orders. Special price on 50 or 100. Circular free. Send all orders to

Quirin the Queen-breeder,

Money-order Office.

Parkertown, Ohio.

TEXAS QUEENS!!



From the Lone Star Apiaries. G. F. Davidson & Son, prop's, have made great preparations for the coming season to accommodate their many customers with either Long-tongue, Imported Stock, or Golden Queens. They have bought out the queen-rearing business of O. P. Hyde & Son, Hutto, Texas, and by buying and increasing their

number of nuclei, they are better prepared than ever to cater to the trade of the bee-keeping public. One of Root's Long-tongue Breeders; Imported Stock direct from Italy. Goldens from leading queen-breeders. Fine breeders of each of the above have been added to their yards. Safe arrival and satisfaction guaranteed. Send for queen circular and price list. We are now prepared to fill orders for Cyprian and Carniolan queens. Good strains. Address

G. F. Davidson & Son, Box 190, Floresville, Texas.

Business Bees!

Are the kind you want for honey. We have them in our select five-band strain. J. F. Aitkins, Reno, Nev., has been buying several dozen queens a year—last year 180; have his order for 100 in April. F. L. Cravcraft, Havana, Cuba, bought about 200 in fall of 1900; also 100 last April; has placed his order for 100. These men are large honey-producers. They know what they are about. We are better prepared than ever to handle orders. Prices: Untested queens, \$1.00; dozen, \$9.00; after May 1st, \$8.00; tested, \$1.50; select, \$2.00. Send for circular. J. B. Case, Port Orange, Fla.



THE CYPHERS INCUBATOR

IS THE STANDARD HATCHER OF THE WORLD.

Used with uniform success on twenty-six Government Experiment Stations in the U. S., Canada, Australia, and New Zealand; also by America's leading poultrymen and many thousands of persons in every walk of life. Guaranteed to give satisfaction or price refunded. The original and only genuine non-moisture incubator, fully covered by patent. Winner of

GOLD MEDAL AND HIGHEST AWARD AT THE PAN-AMERICAN,

Oct., 1901. Illustrated, descriptive, 16 page circular FREE. Complete new catalogue for 1902 containing 180 pages, 2x11 inches in size, for 10c in stamps to pay postage. Illustrates over 100 of America's largest and most successful poultry plants. Ask for book No. 74 and address nearest office.

Cyphers Incubator Co., Buffalo, N. Y., Chicago, Ill., Boston, Mass., New York, N. Y.

IT TAKES FIVE CATALOGUES

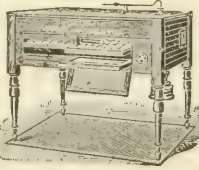
printed in five different languages to tell the people of the many points of superiority

SUCCESSFUL Incubators & Brooders.

One 500 egg machine will hatch more chicks than 20 steady old hens each time it is filled with eggs. They will be stronger, more healthy chicks, too. These machines will do for you just what they have done for thousands of others. Write for 158 page Catalog enclosing 6c to pay postage. We ship machines and handle correspondence for the East from our new house in Buffalo. Write nearest office.

DES MOINES INCUBATOR COMPANY,

Box 503, Des Moines, Iowa, or Box 503, Buffalo, N. Y.



JUST AS NATURAL as the old hen and a good deal more reliable. Doesn't break its eggs or make its chicks lousy. Doesn't stay off the nest and allow the eggs to chill but hatches every egg that can be hatched.

THE PETALUMA INCUBATOR

Absolutely perfect as to incubator essentials—proper application and distribution of heat and moisture, regulation and ventilation. For 64 to 324 eggs. We Pay Freight anywhere in U. S. Catalog free.

PETALUMA INCUBATOR CO.,

Box 125, Petaluma, California, or Box 125, Indianapolis, Ind.

A MILLION TESTIMONIALS 30 DAYS TRIAL WILL



Our 50 egg compartment hatches have advantages over all other incubators. Bantams at \$5, \$9.50 and \$15 for 50, 100 and 200 egg sizes. Hatch every good egg. Send 2 cents for No. 64 catalogue.

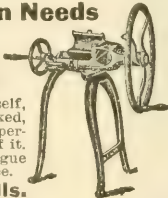
BUCKEYE INCUBATOR CO., Springfield, Ohio.

Every Chicken Man Needs
a green bone cutter.

The Adam

alone is ball bearing, it cleans itself, it cannot become clogged or choked, it is fed at the pleasure of the operator. You will want to know of it. Send for our Illustrated Catalogue No. 39, before you buy. Sent Free.

W. J. ADAM, Joliet, Ills.



MAKE POULTRY PAY

by feeding green cut bone. The Humphrey Green Bone and Vegetable Cutter is guaranteed to cut more bone in less time with less labor than any other cutter made. Send for free book containing blanks for one year's egg record.

Humphrey & Sons, Box 51, Joliet, Ill.



GREIDER'S FINE CATALOGUE

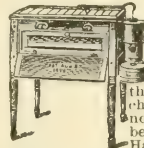
of prize winning poultry for 1902, printed in colors, illustrates and describes 50 Varieties of Poultry; gives reasonable prices of eggs and stock. Many hints to poultry raisers. Send 10c in silver or stamps for this noted book.

B. H. GREIDER, Florida, Pa.

GUARANTEED

Raspberries, Blackberries, Dewberries, Strawberries, Currants, Grapes, Gooseberries, etc. I grow every plant I sell. Strong, healthy, well-rooted, fresh dug plants. Largest grower in country. New Catalog mailed free.

ALLEN L. WOOD, Wholesale Grower, Rochester, New York.



The Sure Hatch

is the incubator for the poultry raiser, whether farmer or fancier. Anyone can run them, because they run themselves. Anyone can own them, because the price is right. Machine and results guaranteed; you take no risk. Our Common Sense Brooder is the best at any price, and we sell it very low.

Handsome catalogue containing hundreds of views and full of honest poultry information, mailed free. When writing address nearest office. **Sure Hatch Incubator Co. Clay Center, Neb. or Columbus, O.**

"ALL RIGHT" Little \$8.00

Sixty at \$8.00 This means that we ship anywhere our 60 Egg, Copper Tank



"All Right" Incubator for FORTY DAYS FREE TRIAL and charge \$8.00 for it only when the customer is satisfied. Absolutely the best 60 egg machine on the market at any price. Send for our free poultry book, "All Right."

(Western orders shipped from Des Moines, Ia.)

CLAY PHELPS INCUBATOR CO., STATION 27, CINCINNATI, O.



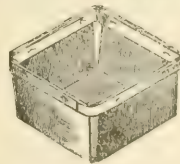
200-Egg Incubator for \$12.80

Perfect in construction and action. Hatches every fertile egg. Write for catalogue to-day. **GEORGE H. STAHL, Quincy, Ill.**

POULTRY PAPER FREE.

Your name and address on postal card mailed to **Keenble Poultry Journal, Quincy, Illinois**, will bring you free sample with elegant full-page color plate frontispiece showing in natural colors a pair of standard fowls, reproduced from oil painting by Frank L. Sewell. World's greatest poultry artist. Sixty-eight to 160 pages monthly, 50 cents a year. **SEND TO-DAY FOR FREE SAMPLE.**

Fruit Packages of All Kinds.



BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.

YES, SIR!

The MUTH'S SPECIAL Dovetail hive is a CRACKERJACK. COVER and BOTTOM are absolutely warp-proof. We know because we are practical. Our illustrated catalog explains it all. You can have one by asking. Not a hive left over from last season. We sell the finest supplies at manufacturer's prices.

STANDARD BRED QUEENS. None better than our Buckeye Strain of 3-banders and Muth's Strain Golden Italians. 75c each; 6 for \$4.00. Safe arrival guaranteed.

THE FRED W. MUTH CO.,

FRONT AND WALNUT.

CINCINNATI, OHIO.

Queens You Should Have

Does blood tell in other stock? Give your bees a chance. Stock used for breeding the queens offered—not from a sport, but my pick out of an apiary giving last season an average yield as follows:

Honey Gathered.

102 lbs. extracted and 68 lbs. comb honey per colony besides increase and stores for winter.

Quality of Comb Honey Produced.

"Man! It would dazzle you."—Wm. McEvoy, Ontario Government Inspector of Apiaries.

Wintering Qualities.

Up to the present, January 30, I never found these bees to show the least indication of unrest—always perfectly quiet. They are wintering perfectly.—Frank T. Adams, Brantford, Canada.

General Commendation.

Out of those queens you sent me I have produced the best race or strain of bees I ever owned. Remember that is saying a lot, as I have tried every breed imported to this country. The bees winter better, build up, and stand cold chilly winds in spring better, and are more suitable than any bees I ever owned. For the season they gave me about double the honey the pure Italians did, and more increase. Glad you are going into the queen business, and are going to join our ranks again. We are much in want of a few men like you.—C. W. Post, Ex president Ontario Beekeepers' Association (owns 365 colonies).

S. T. Pettit, Canada's most successful comb-honey producer and bee-keeper, says: "The blood in my apiary is largely the progeny of queens sent by you, and they are grand bees."

Prices of Queens.

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WANTED.—To sell 120 stands of bees; 80 stands to lease. J. B. SUMMERS, Berthoud, Colorado.

WANTED.—To sell Early Ohio, Queen of the Valley, and Carman No. 3 seed potatoes. A. V. TOBIAS, Covington, O.

WANTED.—To exchange for cash, beeswax, or offers, 1 12-in. and 2 6-in. Root foundation-mills. M. H. HUNT & SON, Bell Branch, Mich.

WANTED.—Choice clean worker brood-combs, old-style Simplicity frame preferred. L. H. ROBEY, Worthington, W. Va.

WANTED.—To exchange Dadant uncapping-cans, Root's No. 5 extractor, and other supplies, for honey or wax. O. H. HYATT, Shenandoah, Iowa.

WANTED.—Comb honey in Danzenbaker sections in exchange for supplies, or will pay cash. We prefer large lots of white honey, but can use some amber in this size. THE A. I. ROOT CO., Medina, Ohio.

WANTED.—To sell or exchange gasoline-engines for all purposes—stationary, marine, bicycle, etc.; want machinery of all kinds. Robert B. Gedy, LaSalle, Ill.

WANTED.—To sell Rocky Ford cantaloupe seed. Seed of these famous melons postpaid, 40 cts. per pound. Choice selected stock. H. F. HAGEN, Rocky Ford, Colorado.

WANTED.—To know who has 200 colonies of bees to sell cheap; also what young man would like to serve an apprenticeship with Quirin the queen-breeder. H. G. QUIRIN, Parkertown, O.

WANTED.—To exchange a stock-farm in Oklahoma, for land and bees in a good bee locality further east. J. FOLIART, Bostick, Okla. Ter.

WANTED.—To exchange New Cumberland black-raspberry plants (Cuthbert), Fay's Currants, blackberry (Snyder, Taylor, Western Triumph), for beeswax at 30c per lb., or cash. Wanted, old comb and slumgum. A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange a Marlin 25-20 caliber rifle, good as new, for 4x5 cycle folding camera in like condition. GEO. W. BLAIR, Riverton, Mich.

WANTED.—Order for 50 four frame nuclei, wired combs. All to one consignee, \$2.75 each. For delivery about June 1st. If ordered by April 15, will supply any style frame not larger than regular-size Hoffman, and new combs wired. All built during May, 1902. Will make nuclei as strong as can be shipped safely. Untested queens. B. F. AVERILL, Howardsville, Va.

WANTED.—To exchange Victoria rhubarb roots at \$1.25 per 100, White Wyandotte and Pekin duck eggs at \$1.50 per 30, and a Prairie State incubator, for strawberry-plants and bees. GEO. M. AMES, Tamaroa, Illinois.

WANTED.—To exchange Acme combined scroll and circular buzz-saw; foot and hand power; made by Seneca Falls Co.; almost new; for honey bees, or offers. JNO. NEBEL & SON, High Hill, Mo.

WANTED.—To exchange choice eggs for hatching from prize B. P. Rocks or Brown Leghorns, for maple syrup. CHAS. MCCLAVE, New London, O.

WANTED.—Competent man to cultivate 20 acre ranch. Good references required. T. LYTLE, Manzanala, Col.

WANTED.—Buyer for 70 colonies bees on Hoffman frames, also appliances sufficient for 100 colonies. H. H. INGERSOLL, West Olive, Mich.

WANTED.—To trade good two-story building, fine location, for bees in good hives. E. Y. PERKINS, Creston, Iowa.

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WANTED.—To purchase 150 colonies bees, L. frames. Must be clean of disease. State price f. o. b. cars. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

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WANTED.—A farm hand with no bad habits, and industrious. Good wages paid. Address at once F. O. TWINING, R. F. D. 1, North Amherst, Ohio.

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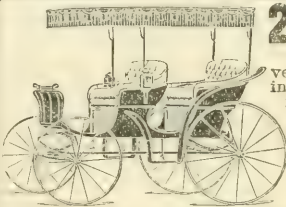


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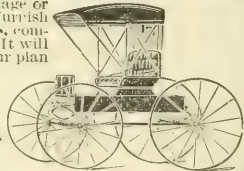
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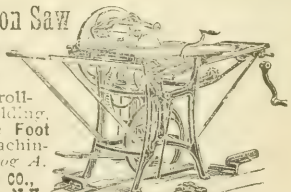
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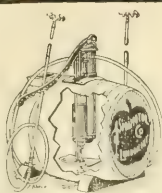


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 - 10 Same, words and music, board covers 75
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 - One-third off on all Gospel Hymns mentioned above.
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 - 15 Story of the Bible ** 1 00
- Years ago, when Huber was a little boy, he got hold of this book and read it clear through, asking his mother questions without number all along through the book. When he got to the end he turned over to the fore part and commenced to read it through again. We laughed at him somewhat, but let him go on. But when he started the *third* time I remonstrated. Now, this illustrates what sort of a book this is. We sold hundreds of them; but finally, when the book got to be old, it was taken out of our book list. I do not know just why, but nevertheless orders have kept coming for that wonderful book by Charles Foster, the Story of the Bible. Almost any child will read it if he gets a chance; and who can tell the effect it may have in fixing his young mind upon things that are good and pure and true? By buying them in considerable quantities we are enabled to furnish such a large book (notice the postage is 15 cts.) for only \$1.00.
- 4 Stepping Heavenward** 18
 - 5 Tobacco Manual** 45
- This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

- 20 A B C of Bee Culture, cloth 1 00
- 4 Amateur Bee-keeper, by J. W. Rouse 22
- 14 Bees and Bee-keeping, by Frank Cheshire, England, Vol. I, § 2 36
- 10 Bees and Honey, by T. G. Newman 65
- 1 Bienen-Kultur, by Thos. G. Newman 25
- This is a German translation of the principal portion of the book called "Bees and Honey." 100 pages.
- 1 Bienenzucht und Honiggewinnung 50
- Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.
- 10 Cook's Manual, cloth 1 15
- 5 Doolittle on Queen-rearing 95
- 2 Dzierzon Theory 10
- 3 Foul Brood; Its Natural History and Rational Treatment 22
- 10 Langstroth Revised, by Chas. Dadant & Son 1 10
- 15 Quinby's New Bee-keeping 90
- British Bee-keeper's Guide-book, by Thomas William Cowan, England § 40
- The Honey-bee, by Thos. William Cowan 95
- 3 Merrybanks and His Neighbor, by A. I. Root... 15

- 10 The Honey-makers, by Miss Margaret W. Morley 1 15

This is a story of the life of the bee, told in very interesting style—how it lives, gathers honey, and all about it. While clothing the general subject with an air of poetry, it seems to be entirely within the limits of known facts while attempting to deal with them. We believe it will give all thoughtful bee-keepers a greater liking for their business to read it. Probably it has more to do with the curious traditions connected with bees than any other book of the kind.

- 10 The Life of the Bee 1 30
- Thos. Wm. Cowan editor of the British Bee Journal, in his review of Maeterlinck's work, says: "Not since the appearance, in 1876, of Bucher's 'Mind in Animals' have we had a book about bees more charming, or one that we have read with greater pleasure, than Maeterlinck's 'Life of the Bee.'"

MISCELLANEOUS HAND-BOOKS.

- 5 A B C of Carp Culture, by Geo. Finley 25
- 5 A B C of Strawberry Culture,** by T. B. Terry. New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.
- 5 A B C of Potato Culture, Terry** New edition, revised & enlarged; paper, 45c; cloth, 68c, mail 75c. This is T. B. Terry's first and most masterly work.
- 8 Barn Plans and Out-buildings* 90
- Canary birds, paper 50
- 2 Celery for Profit, by T. Greiner** 25
- The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.
- 15 Draining for Profit and Health, Warring 85
- 8 Domestic Economy, by I. H. Mayer, M. D.** 30
- This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is \$1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.
- 10 Farming for Boys* 1 15
- This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.
- 10 Fruit Harvesting, Storing, Marketing, etc. 75
- It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexperienced in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, \$1.00.
- 1 Farming with Green Manures, postpaid** 90
- This book was written several years ago; but since competent labor has got to be so expensive, and hard to get, many farmers are beginning to find they can turn under various green crops cheaper than to buy stable manure, and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops, and keeping up the fertility, by a similar treatment, on our ten-acre farm.
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- 5 Garden and Farm Topics, Henderson** 60
- 12 Gardening for Pleasure, Henderson* 1 10
- 12 Gardening for Profit** 1 10
- 8 Gardening for Young and Old, Harris* 90
- This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is

brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage

Plants..... 20
This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse construction, by Prof. Taft**..... 1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft**..... 1 15

The book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is \$1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper*..... 20

5 | Gregory on Squashes, paper*..... 20

5 | Gregory on Onions, paper*..... 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen..... 05

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I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheapens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

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15 | How to Make the Garden Pay**..... 1 35

By T. Greiner. Those who are interested in hot-beds, cold-frames, cold green-houses, hot-houses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price, \$2.00.

2 | How we Made the Old Farm Pay—A Fruit-

book, Green 15

2 | Injurious Insects, Cook..... 10

10 | Irrigation for the Farm, Garden, and Orchard* 85

By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

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Over 30,000 words and 250 illustrations.

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In which he tells "how we have made a run-down farm bring both profit and pleasure."

If ordered by express or freight with other goods, 10c less.

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10 | Small-Fruit Culturist, Fuller 75

2 | Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown..... 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceeding plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

2 | Sweet Potatoes; Forty Years' Experience with,

By Waldo F. Brown **..... 08

This little book, by a veteran teacher at our farmers' institutes, ought to be worth many times the price to everybody who grows even a few sweet potatoes in the garden. It also gives full particulars in regard to handling and keeping this potato, which is difficult to keep unless you know just how.

10 | Talks on Manures* 1 35

10 | The New Agriculture; or, the Waters Led Cap-

tive (a \$1.50 book) 40

11 | The New Egg-Farm, Stoddard**..... 70

This is an enlarged edition of the 50-cent book published 25 or 30 years ago by H. H. Stoddard. If I could have only one poultry-book it would be the New Egg-farm. This book is of special value to me because it not only discusses most emphatically the value of exercise to poultry, but it touches on the value of exercise to all other animated nature including humanity. The book has over 300 pages and 150 illustrations. It is entirely different from any other poultry-book in the world, inasmuch as it discusses mechanical contrivances so that all the varied operations of a poultry-farm may be done as much as possible with the aid of machinery. The regular price is \$1.00, but by buying a quantity we are able to furnish it at price given.

5 | The New Rhubarb Culture**..... 40

Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book, for the lessons taught indirectly, in regard to forcing other crops besides rhubarb. Publisher's price 50c.

2 | Treatise on the Horse and his Diseases..... 5

5 | Tile Drainage, by W. I. Chamberlain..... 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

3 | Tomato Culture 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Vegetables under Glass, by H. A. Dreer**..... 20

3 | Vegetables in the Open Air**..... 20

This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope**.. 47

8 | What to Do and How to be Happy While doing

It, by A. I. Root 65

8 | Same in paper covers..... 40

THE A. I. ROOT CO., Medina, Ohio.

QUEENS, QUEENS

Old Standbys.—The A. I. Root Co., to whom we have sold queens for many years, wrote us last May, uns: "Are you running low on queens? We hope not, as you seem to be our standbys. Send us 24 per week instead of 12, till further orders."

Beat Any Thing He ever Saw.—The Cyprian queens you sent me last year beat any thing I ever saw rearing brood and filling their hives with honey.—J. Nielson, Huntington, Utah, Sept. 4, 1901.

Is Great.—The nucleus you sent me last fall is great—the finest queen that ever crossed the plains. Please duplicate her this time. Mr. Jordan says the nucleus you sent him cast two fine swarms.—G. R. Warren, Fruitvale, Cal., May 12, 1901.

\$50 Queens.—My nice queen that you sent me, and I put in a hive with a handful of bees on the 6th day of last June, has now nearly filled her 30-lb. super for the third time. No man's \$50.00 bill could take her. Please send me another one like her as soon as possible, and keep a dozen ready for me like her for the 20th of April next, and I will make you a nice present.—M. Brown, Station A, Little Rock, Ark.

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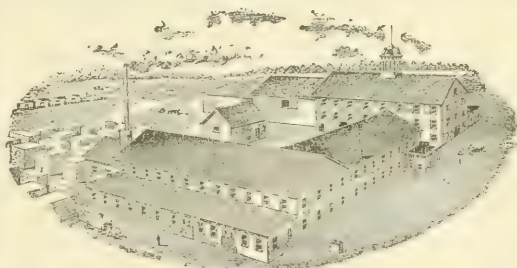
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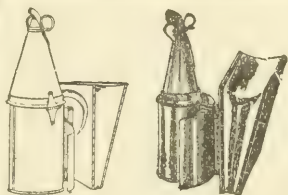
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Truly yours,
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Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

CHICAGO.—Choice white comb honey produced from basswood and white clover is scarce, and brings 15c per lb. All other kinds of white is in over supply, and the market is weak at 12@13; light-amber grades, 10@11; dark, 8, 9; candied and mixed lots, 7@8. Extracted weak with white ranging from 5½@6½; amber and dark, 5@5½. Beeswax selling at 32, and in good demand.
R. A. BURNETT & Co.,
April 7. 199 South Water St., Chicago, Ill.

BOSTON.—The demand for comb honey is fairly good considering the time of year. Stocks on hand ample for the demand. Prices remain as per our last quotation. Fancy, 15@16; A No. 1, 14@15; No. 1, 13@14; honey in glass-front cases about 1c less. California light amber, extracted, 7½@7½; Florida honey in barrels, 6@6½.
BLAKE, SCOTT & LEE,
April 7. 31, 33 Commercial St., Boston, Mass.

BUFFALO.—The stock of honey in our market is light. Demand is slow, but prices hold quite steady. No jobbing demand, or prices would be shaded in lot sales. Fancy white comb, 14@15; A No. 1, 13½@14; No. 1, 13@13½; No. 2, 12@12½; No. 3, 11@12 dark, 10@12. Extracted white, 6½@7; amber, 6@6½; dark, 5@5½. Beeswax, 28@30.
W. C. TOWNSEND,
April 9. 84, 86 West Market St., Buffalo, N. Y.

NEW YORK.—Comb honey.—Last year's crop is practically cleaned up but as we wrote a little while ago we had received a new crop from Cuba, and are now receiving a new crop from the South. Demand is fair at 14c for fancy white; No. 1, 13; No. 2, 12; amber, 10@11. Extracted.—The market is decidedly dull. Very little demand, with large stocks on hand, some of which no doubt will have to be carried over, and indications point to a further decline in prices. We quote white, 6; light amber, 5½; amber, 5; Southern, 5½@58 per gallon, according to quality. Even these prices are shaded in car lots. Beeswax scarce and firm at 29 @30.
HILDRETH & SEGELKEN,
April 7. 265-7 Greenwich St., New York City.

CINCINNATI.—The general tone of the honey market is lower. Water-white comb honey sells from 14@14½, and is hard to obtain; extra fancy, 15. Extracted has weakened a little, and sells from 5@5½; fancy, 6@6½.
C. H. W. WEBER,
April 17. 2146 Central Ave., Cincinnati, Ohio.

SAN FRANCISCO.—Comb honey, 10@12. Extracted, water-white, 5½@6½; light amber, 4@5½; dark, 4@5. Southern California reports 10 inches of rain to date; this makes a half crop secure. Should additional rains follow, the percentage will increase. The census bureau credits New York State with producing, in 1899, 3,342,497 lbs. of honey; California, 3,667,738; and, "Tell it not in Gath," Texas, 4,780,204 lbs. Now let the Texans blow their "Long Horns," while California "goes way back (of Texas) and sits down." Prospects in Central and Northern California are excellent for a good season. Wax, 27—30. E. H. SCHAEFFLE,
March 26. Murphys, Calif.

DETROIT.—Fancy white comb honey, 15; No. 1, 13@14; dark and amber, 11@12. Extracted white, 6½@7; dark and amber, 5@6. Beeswax, 29@30.
Apr. 8. M. H. HUNT & SON, Bell Branch, Mich.

MILWAUKEE.—The market continues very quiet on honey. The supply is fair, and demand not urgent. Sales slow, especially on the extracted of all grades. Choice comb honey meets with more favor, yet sales are not as usual at this season of the year. We continue to quote: A No. 1 sections, 13@15; No. 1, 13@14c. Off-grades entirely nominal. Extracted in barrels, kegs, and cans, white, 7½@8c; amber, 5@7c. Beeswax, 28@28.
A. V. BISHOP & Co.,
March 19. 119 Buffalo St., Milwaukee, Wis.

FOR SALE.—2000 lbs. honey, buckwheat mixed, at 7c, freight prepaid, in 60-lb. cans, two cans in a case.
B. F. AVERILL, Howardsville, Va.

WANTED. Comb honey in any quantity. Please advise what you have to offer.
EVANS & TURNER,
Town St., Cor. 4th, Columbus, Ohio.

WANTED.—Comb and extracted honey. State price, kind, and quantity.
R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Extracted honey, either large or small lots; parties having same to offer, send samples, and best prices delivered, Cincinnati, O. We pay cash on delivery.
THE FRED W. MUTH CO.,
Front and Walnut Sts., Cincinnati, O.

WANTED.—Comb honey in Danzenbaker sections. We can use both white and amber.
THE A. I. ROOT CO., Medina, Ohio.

FOR SALE.—Fancy and No. 1 comb honey; about 2000 lbs. or more.
WM. MORRIS, Las Animas, Col.

FOR SALE.—Extracted honey, from alfalfa, at 7c per pound. Send for sample.
D. S. JENKINS, Las Animas, Col.

FOR SALE.—Whitest alfalfa honey, \$9.00; tinted, \$7.80, per case of two 60-lb. cans, net.
ARKANSAS VALLEY APIARIES, Las Animas, Col.

FOR SALE.—Clover and sweet-clover extracted honey at 7c, in kegs and cans.
DR. C. L. PARKER
Sta. A, R. F. D., Syracuse, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.
SEAVEY & FLARSHHEIM,
1318-1324 Union Avenue, Kansas City, Mo.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange for cash, beeswax, or offers, 1 12-in. and 2 6-in. Root foundation-mills.
M. H. HUNT & SON, Bell Branch, Mich.

WANTED.—To exchange Dadant uncapping-cans, Root's No. 5 extractor, and other supplies, for honey or wax. O. H. HYATT, Shenandoah, Iowa.

WANTED.—Comb honey in Danzenbaker sections in exchange for supplies, or will pay cash. We prefer large lots of white honey, but can use some amber in this size.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—To sell Rocky Ford cantaloupe seed. Seed of these famous melons postpaid, 40 cts. per pound. Choice selected stock
H. F. HAGEN, Rocky Ford, Colorado.

WANTED.—To know who has 200 colonies of bees to sell cheap; also what young man would like to serve an apprenticeship with Quirin the queen-breeder.
H. G. QUIRIN, Parkertown, O.

WANTED.—To exchange New Cumberland black-raspberry plants (Cuthbert), Fay's Currants, blackberry (Snyder, Taylor, Western Triumph), for beeswax at 30c per lb., or cash. Wanted, old comb and slungum.
A. F. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange Victoria rhubarb roots at \$1.25 per 100. White Wyandotte and Pekin duck eggs at \$1.50 per 30, and a Prairie State incubator, for strawberry-plants and bees.
GEO. M. AMES, Tamaroa, Illinois.

WANTED.—To trade good two-story building, fine location, for bees in good hives.
E. Y. PERKINS, Creston, Iowa.

WANTED.—To sell for cash, 5-gallon square tin cans in partitioned cases of two cans each, in lots of 20 cases or more, at about half the price of new cans. Having been in use once only, and as containers of honey they are practically as good as new. For particulars and prices, address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To purchase 150 colonies bees, L. frames. Must be clean of disease. State price f. o. b. cars.
OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell five colonies of Italian bees with new eight-frame Root's Dovetailed hives complete for \$4.00 per colony. Strong colonies, free from all disease.
I. L. POWELL, Millbrook, N. Y.

WANTED.—To buy 50 to 100 colonies of bees in Colorado.
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WANTED.—To exchange a 32-caliber Winchester rifle for a 10-inch Root foundation-mill.
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WANTED.—To sell 500 brood-combs, just a little larger than the Hoffman frame, at \$3.00 per 100, f. o. b. at Petoskey.
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WANTED.—To sell a Caligraph typewriter for \$25. A substantial, long-lived, rapid machine, doing excellent work; sample on application; the best value for the money.
W. J. FINCH, JR., Carlinville, Ill.

WANTED.—To exchange brood foundation for beeswax or offers.
FRED W. BUTTERY, R. F. D. 43, Norwalk, Conn.

WANTED.—To sell 30 colonies of Italian and hybrid bees at \$2.50 per colony.
J. F. RASCH, Marilla, N. Y.

WANTED.—Second-hand or knocked-down hives. Describe them, with price. Also want a man who knows how to handle bees a little.
W. L. COGGSHALL, West Groton, N. Y.

WANTED.—To sell Gulf coast sea-shells, cabinet specimens and shells for all purposes. Prices low. Send 15c for 12 nice shells.
G. S. WARNER, Palma Sola, Manatee River, Florida.

WANTED.—One dollar for 15 W. P. Rock eggs; \$3.00 for 50, or \$5.00 for 100; from 93 to 95 scoring birds; cockrels and pullets, \$1.00 each; 75 cts. for one Golden Italian queen, or \$8.00 per dozen—after August 1st, 50c each or \$3.00 per dozen.

GEO. W. COOK, Spring Hill, Kansas.

WANTED.—To exchange 30 colonies of bees with fixtures, Hilton chaff hives—every thing up to date—for wall-paper stock or cash offers.
H. F. SWAN, Grand Rapids, Mich.

WANTED.—Beeswax, typewriter, and wheel-hoe and drill. Send for long list of articles to select from in exchange.
F. H. MCFARLAND, Hyde Park, Vt.

WANTED.—To exchange a Clark's cutaway harrow and a Brightest and Best blue-flame oil stove for bees or offers.
J. P. MOORE, Morgan, Ky.

WANTED.—To exchange 10 colonies of hybrid bees, some fine collie-shepherd pups, one good hound, some fine gent canary birds (beautiful singers) for a lady's or nice watch, a good shotgun, or almost any thing you have for trade except poultry. Address with stamp.
W. S. BRILLHART, Oakwood, Ohio.

WANTED.—To exchange a \$35.00 Henley wire and picket fence machine (to weave on the posts) for offers, or will sell for \$7.00, as I have no use for it. In good condition.
C. BROWN, Box 61, Dayton, O.

WANTED.—To sell one Zimmerman Autoharp No. 2 3/4, used very little, good as new. \$2.50 takes it.
MRS. N. O. PENNY, Nathan, Fla.

WANTED.—Bee keepers to study our advertisement and testimonial of queens in April 1st GLEANINGS.
R. F. HOLTERRMANN, Manager Bee Department, Bow Park Co., Limited, Brantford, Canada.

WANTED.—A honey-extractor. Also a foot-power circular saw. State kind and price.
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Fred W. Foulger & Sons, Ogden, Utah.
Colorado Honey Producers' Association, 1410 Market St., Denver, Colo.
Colorado Honey Producers' Assoc'n, R. C. Aiken, Mgr., Loveland, Colo.
Grand Junction Fruit-growers' Association, Grand Junction, Colo.
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VOL. XXX

APR. 15, 1902.

No. 8.



SOFT MAPLES bloomed March 24—12 days earlier than last year.

"A BEGINNER with a few brains, boards, and a buzz-saw, is the man before all others who feels called upon to invent a bee-hive."—*Editor Hutchinson.*

WHEN A COLONY SWARMS, what per cent of the bees go with the swarm, and what per cent remain? [This varies; and while I will not attempt to answer the question, I will put out a rough guess as an average. I should say 75 per cent go with the swarm, and 25 remain with the comb.—ED.]

H. MELZER, in *Centralblatt*, declares from abundant observation that bees get honey from red clover, not when it is deficient in growth, but when it is specially luxuriant, so that the tube is so filled with nectar that the bees can reach it. This occurs especially when hot dry days follow a thunder-shower. [This agrees with our experience.—ED.]

YOU APPEAR to think, Mr. Editor, p. 275, that I do not have confidence enough in Prof. Gillette's work. Just the opposite. I had too much confidence, taking his figures as entirely reliable, and, like the honest man that he is, he says that his reach measurements are not reliable. Yes, indeed, I think he will subscribe to my last statement, although he might prefer to say that tongue-length is not settled by measurement of tongue-reach. [You misunderstood me. I understood you to mean just what you now say in the foregoing.—ED.]

BRO. DOOLITTLE, on page 277 that man Brown gets you mixed up, or you get him mixed up, or else you both get me so mixed up that I can't understand English. You first state my question as I gave it, why is it erroneous to call a prime swarm a first swarm? and then you say I wish to know why it is erroneous to call a first swarm a prime swarm. Then you go to work and

answer the question that I never asked. Now will you kindly answer the question that has been waiting for an answer seven years? If you will please answer it I have another question to ask.

THE ONLY HIVE badly spotted with diarrhea last winter was one of the painted ones (I think there are three painted). I don't know whether the paint had any thing to do with it, but I remember another winter the hive with most dampness was painted. [I suspect that the other Miller (Arthur C.) would tell you there could be no possible difference between the painted and unpainted hive, because either one is smeared over on the inside with propolis, and therefore would not let moisture pass through. Is it not possible that what you observed was an accidental coincidence?—ED.]

ANSWERING your question, p. 275, I never put on more than one super at a time nowadays. Too much heat is needed to fill up two. The fact remains that I had just as fine work when I put on 56 sections at a time. [Yes, probably; but the fact remains that you do not consider it good practice to give too much room at the start; and if not good practice, you of course do not get as good results. While the honey that was secured was just as good and just as pretty, is it not true that the bees would be longer in getting into the supers when they had a great big empty space to go into and keep warm?—ED.]

FOR BEGINNERS who allow natural swarming, I want to suggest a plan for improvement of stock that is more than 40 years old (I mean the plan, not the stock, is so old). Strengthen with brood the colony with best queen, so as to get it to swarm first. Call it No. 1. When No. 1 swarms, put swarm in place of No. 1, and set No. 1 in place of No. 2, setting No. 2 on a new stand. When No. 1 swarms again (perhaps 8 days later), set the swarm in place of No. 1; set No. 1 in place of No. 3, and set No. 3 in a new place. As often as No. 1 swarms (and it may do so several days in succession), set the swarm in place of No. 1, and set No. 1 in place of some other full colony.

AN EXCELLENT little treatise on queen-rearing has just been published in France by Giraud-Pabou and Son, giving an up-to-date *resume* of methods used in this country and elsewhere. The experiment given, p. 522, GLEANINGS, 1900, is quoted quite fully to show that bees sometimes choose larvæ 4 or 5 days old for queen-rearing. But attention is not called to the fact that the bees chose the youngest larvæ they had, and that under ordinary circumstances there would have been plenty of larvæ young enough when the last cells were started. For when the brood was given to No. 18 the youngest egg was three days old, and under ordinary circumstances there would be eggs three days younger.

THE ADDED TOUGHNESS in foundation made by the new process is an excellent thing in the brood-chamber; but in the case of super foundation there may be a danger of its being carried too far.—D. D. M. in *British Bee Journal*. I wonder how much there is in that. [While the new process makes wax tougher it also makes it possible to use less wax in ordinary sheets of foundation, both brood and super. The result of this was that all sheets are made lighter. The ordinary foundation for sections is, as a rule, much lighter than that which was made years ago by the old plan. If the new wax is tougher, there is less of it, so there is and can be no more (if as much) midrib as before.—Ed.]

ARE YOU SURE you are not mistaken, Mr. Editor, in saying, p. 285, that there were no beet sugars on the market when A. I. Root made his experiments? He began bee-keeping in 1865, and at that time was not $\frac{1}{10}$ of the total sugar supply beet sugar? and didn't we have our full proportion in this country? We didn't *know* we were using beet sugar, though. [At that time, 1865, the beet sugars that were then made were confined almost entirely, if I mistake not, to Europe. Beet sugars did not come into use in this country until the beet was grown here, if I am correct. The growing of this, as you probably know, is a comparatively new industry in the United States; so I feel quite positive that the sugars that A. I. Root used along in the 70's were all cane.—Ed.]

QUITE A TRAFFIC in some parts of Germany is the sale of "naked" colonies, as they are called—bees drummed out without any combs. They are generally shipped from the middle of September to the first of October. [How far do they ship them, and how? Years ago, you remember, we used to do a business something of this nature, sending what we then called "bees by the pound." A large cage was prepared, filled with Good candy. The bees were shaken off the combs into a large funnel, which delivered them into this cage. They were weighed up; and if the scales showed, after deducting tare, a full pound, a wire-cloth cover was put on and the package of bees was sent by express. But we had to give

it up because so many of the bees died *en route*. We now ship in the form of nuclei on combs, and the results are very much more satisfactory.—Ed.]

BRO. A. I. ROOT, I'm afraid if we stop all papers that either directly or indirectly advertise the liquor business, as you advise, p. 298, most of us would do without papers. Rather than patronize a paper with a Sunday edition, I take the only daily I know of in Chicago without a Sunday edition, even though it brings the news to me nearly a day later; but the *Daily News* is not sinless in the way of advertisements. If you will get a number to band together, I'm ready to join you in doing without the news till a paper with clean ads. is started. [Don't you mean, doctor, we would have to go without *daily* papers? Surely there are weeklies without number that do not and never will accept any thing in the shape of a liquor advertisement. Who else among our readers will join the "band" with Dr. Miller and myself as above? We learn from the *American Issue* that it was stated at a recent editorial convention at Manhattan, Kansas, that only 61 out of the 783 newspapers and periodicals in the State will publish a whisky advertisement.—A. I. R.]

MY ANSWER to that question, page 298, is that cigarette John is not worth as much as another boy just like him in all respects but the cigarette. One reason is that John has in him a deteriorating element not found in the other boy. I don't believe a boy can be quite as truthful and reliable with cigarettes as without. The cigarette seems to deaden his sensibility to the harm of being unfaithful or untruthful. [Doctor, your remarks bring to mind an incident of just a few days ago. The Lakeshore Railroad has for ticket agent at a small station a young man who smokes cigarettes while he sells tickets. This young man got my money, but the ticket he made out would never have been accepted by the conductor had not a passenger aided his befuddled brain in the matter; and then the agent had to go with me to the conductor on the train and explain why my ticket was in two pieces. If the Lakeshore Railroad has not yet decided that cigarette smokers are not fit to sell tickets, I offer it the above evidence.—A. I. R.]



As Mr. Secor seems to be gradually retiring from the post of poet-laureate for the bee-keepers, his mantle seems to be falling on Mr. Harry Lathrop, now of Calamine, Wis. See another column.

We have received several copies of the *Bulletin of Agriculture*, published by the

Central Union of Scientific Industries, of San Salvador, Central America. It is gratifying to see the apparent progress being made in bee-keeping, as well as all other branches of agriculture, in that little republic whose interests have of late become so closely identified with our own. The work is all Spanish.

We have just received from England the following, printed in tract form, from the pen of Mr. R. Hamlyn-Harris, one of the best bee-writers of Europe. It is reprinted from the *Entomologist's Record*. As it seems to cover, in very concise and reliable form, all that is now known relative to *Apis dorsata*, I give it complete. The reader can draw his own conclusion.

It is now some years since the idea was first conceived, that, by the introduction of *Apis dorsata* (known as the Giant bee of India), a valuable addition to our fauna would be obtained, yielding a larger quantity of honey and wax, and generally more profitable than our honey-bee. *Apis mellifica* and its different varieties—var. *ligustica*, var. *Carniolia*, etc. According to Dalla Torre:

Apis dorsata, Fabr., occurs in Assam, India, and Java. Var. *bicolor*, Klug, occurs in Assam, India, Ceylon, and Java. Var. *testacea*, Smith, occurs in Assam and Borneo. Var. *zonata* occurs in Assam, Celebes, and the Philippines. [The var. *zonata* also occurs in India, which is not mentioned by Dalla Torre.]

About three years ago a special enquiry was set on foot to ascertain whether or not the Giant bee of India was really a suitable subject for domestication. At that time I was permitted to look over various reports at the India Office, and all these agreed that *Apis dorsata*, mentioned generally under native names, could not be domesticated, on account of its intractable character. The chief points noted are:

1. It is said to be exceedingly vicious, often attacking man or beast on the smallest provocation. 2. It preserves the same habits and appearance wherever its habitat. 3. It has never been known to build its nest under shelter, but mostly on isolated lofty trees or overhanging rocks. After the honey season the bees will desert their nests, and often travel for long periods and great distances, even crossing such mountain chains as the Nilgherries in their course. 5. They build single combs. 6. And are used to approach from north, south, east, or west. They rarely remain in one locality for more than three weeks, emigrating as flowers become scarcer.

We will consider these points more in detail, to make the subject better understood. Among the hill-men, near Darjeeling (Eastern Himalayas), this bee is known by the name Cargo, and is generally an object of fear and dislike, according to Sladen. It will be readily seen the risk of introducing such a bee, even were it possible, into a thickly populated country would be too great. Not only the hill-men of Darjeeling find *Apis dorsata* an undesirable neighbor, but all are agreed on the subject who have had any experience in the matter. Interesting, however, is the way in which the natives of the Malay Archipelago, for instance, take the comb and honey, showing much courage on their part. Perhaps, also, the *Apis dorsata* may be somewhat less dreaded in the islands than on the mainland of India. The native, having located the nest (some 70 to 80 feet from the ground, sometimes even more*), repairs by night to the spot, and after a wearisome climb, sometimes lasting an hour, with only the smoke fumes of a torch drives the bees away from the combs, which are then severed from the boughs and let down by cords to his helpers below. Such a rough-and-ready style of proceeding must necessarily provoke the bees, and stings, as one may suppose, are plentiful; still the tribesmen do not seem much concerned. It is well known that one of the greatest obstacles to the domestication of this bee is its natural wildness and its inability to settle permanently in one spot. When we consider that *Apis dorsata* usually makes its nest in wild and rocky country, remaining in one locality only so long as

flowers abound, we shall better realize why it moves from place to place, and the importance of so doing to its general welfare. Therefore we see that only by completely altering its natural habits could we hope to domesticate this bee, or bring it into use under differing circumstances from those in which it has always lived. Also on account of its size, and the power of its flight, the Giant bee will travel as much as a hundred miles before again settling down to home life.* It is not so much the honey gathered by these bees which is valuable to the natives, but the large quantities of comb they produce; the latter, being melted down into wax, forms a valuable article of industry in India. The hillmen do not trouble much about the honey, but are said to eat the young bees and larvae with great gusto.

Another great hindrance to domestication is the way they build their nests, quite in the open, entirely unprotected, and always single combs from about five to six feet in length, and about two to three feet in depth. Some fine specimens of these combs are to be seen in the South Kensington Natural History Museum. When a species of insect has been used to certain habits for endless generations—in fact, has never known any others—it will be readily understood how difficult would be the problem presented to us did we attempt to keep such a refractory creature in confinement. The only attempt made seems to have been a failure. A queen-bee was tied by a thread to a stick and placed in the hollow of a tree, and, after two to three months, a very small piece of comb was found, and the experiment proving useless, it was abandoned. Since this a writer to the last Government report says that he "had seven hives all well and fed for the winter," but in the spring the "little brutes" decamped by twenty and thirty a day, until each queen in turn left its hive in disgust. Clipping the queen's wings, as is done in modern bee-keeping, would prove fatal to *Apis dorsata*. On account of her uncontrollable character she would probably be lost. The question arises, if we can not domesticate *Apis dorsata* itself, could we by judicious crossing attain the desired end? The best answer to this question will, I think, be found in the fact that European bees exist which are closely allied to a species found in Northern India, which never crossed with *Apis dorsata*. All these facts considered, there only remains *Apis India*, very similar to our European bee, with which domestication might be a success; but if any real advantage would arise therefrom or not is doubtful; but no doubt can remain that the facts relating to *Apis dorsata* must for ever bar the way to its domestication.

It would seem from this that, notwithstanding the large amount of wax and honey which this bee produces, and which is sold so largely in India, it is incapable of domestication. This agrees substantially with what F. W. L. Sladen and others have said.



CLIPPING QUEENS' WINGS.

"Good morning, Mr. Doolittle. The sun shone so brightly, and the air seemed so springlike, that I thought I would run in a little while, and, if you were not too busy, have a little chat with you relative to clipping queens' wings."

"Yes, it is a nice morning, and looks as if spring might open up before long; but there is still plenty of time for much rough weather before the bees will be out of the cellar. But what did you wish to know about clipping the wings of queens?"

"I have never clipped my queens, and

* This is for protection against the bears, which are (as is known) fond of honey, and would climb the trees in search of it.

* *Apis dorsata* is, however, inclined to fly somewhat clumsily, and to visit flowers somewhat listlessly.

have been in doubt in the matter, as quite a few tell me that clipping does more harm than good; but after having several swarms go off to the woods last summer, I have been wondering what to do, so I came over to consult with you in the matter."

"I have always contended that, by having the wings of all queens clipped, we have the bees under the control of the apiarist and can handle them as we wish, separate them with pleasure when two or more swarms cluster together, and hive them on the returning plan when they come out singly."

"What about this returning plan? I have never heard any thing regarding it; and if there is a better plan than the hiving of bees from a limb or some crotch of a tree, I would like to know about it."

"In using this plan, all you have to do when a swarm issues is to step to the entrance to the hive with a little round wire-cloth cage; and when you see the clipped queen running around in front of the hive hopping about, trying to fly, put the open end of the cage down before her, into which she will immediately run, when the cage is stopped and laid in front of the hive."

"What, don't you have to pick her up and put her in?"

"No, not at all. If you will watch her a moment before you let her run into the cage you will see that she is all the time trying to get something to climb up that she may better take wing, as she thinks, climbing up any little pebble, chunk of dirt, or spear of grass, etc.; and on your holding the cage in front of her she will use the cage for the same purpose, and you are to put in the stopper while she is climbing to the top."

"Well, that is easy, sure. I thought I had to pick her up, and was afraid I should hurt her, and that was one of the reasons I doubted in the matter. But I interrupted you about the plan. Go on from where you left off."

"Having the queen in the cage in front of the hive, the old hive is now moved to a new stand, and a new hive, all fitted and fixed in readiness for the swarm, is set in its place. In a few minutes the bees miss their queen, and, as is always the case where any queen can not accompany the swarm, in a few minutes the bees come back, running into the hive with fanning wings, telling, as plainly as can be, that they are rejoicing over finding their queen. When about two-thirds are in, the stopper is taken out of the cage and the queen allowed to go in with them, the same as she would have done had you cut down a swarm from a tree."

"Is it as simple as that? How long have you followed that plan?"

"I have followed it for over thirty years, and know it to be a good one, and as good a yield of honey is the result as can be obtained by any plan where swarming is allowed—no climbing of trees, cutting of limbs, or lugging a cumbersome basket or swarming-box about. It is so straightfor-

ward—remove the old hive to a new stand, put the new hive in its place, and the returning swarms hive themselves without trouble, except the releasing of the queen."

"Have you any other reason for clipping the queen?"

"Yes. In clipping I cut the most of all of the wings off so that she is always, after that, very readily found. In making nuclei, changing frames of brood and bees, etc., if you find the queen you can always know that she is just where she belongs, and not in some place she ought not to be, where she will get killed, or where you do not wish her. By having her wings cut short, you can see her golden abdomen at once, upon glancing over the frames as you lift them."

"Well, I should think as much of this part as of any of the rest, it seems to me, for it does bother me so to mind a queen; and I now believe that, if the wings were off, I could much more readily find one. Have you any other reason why you clip?"

"Yes, I have not as yet touched on the main reason for clipping, which is the loss of swarms by 'running away' to the woods. Having the queen clipped, even if your bees do start off for the woods or some old hive or open place in a house, you can always rest assured that they will come back again as soon as they miss the queen, and run into the hive fixed for them, the same as did the swarm we first spoke about. Your own experience has taught you what the loss of swarms going to the woods means; and if you had had the wings of those queens clipped last summer, you need not have lost a single one of those which went off."

"If that is so, that settles the matter with me. I will try clipping a part of mine this spring, in any event, and then a trial will tell me which I like best."

"I am glad to hear you talk like that, for that is the way all new plans, or those new to us, should be tried; for it often happens that what suits others does not always suit us. By trying the plans of others on a small scale at first, we are soon able to tell whether they are to our liking; and if they are, we are then ready to adopt them for the whole apiary; and if they do not suit we are not much out for having tried the matter in a limited way. But you can not very well help liking to manage an apiary having the wings of all the queens clipped."

"I judge that I shall, but I must be going now."

"All right! I am glad you called. But before you go I wish to tell you something else you can do with a swarm having the queen clipped. I do not believe in not having hives all in readiness for swarms when they come; but in case of emergency, if the queen is clipped you can hold a swarm out on a limb while you make a dozen hives, or all summer if you wish. If you ever wish to do this, as soon as you have the queen in the cage attach a short piece of wire to the

age; and as soon as the bees begin to alight, bend this piece of wire over the limb, so the caged queen will hang where the cluster will naturally be, when the swarm will alight and cluster the same as they would had the queen not been clipped. You can now go about any thing you may wish to, making hives or any thing else, resting assured that you will find the bees there when you are ready to take care of them, no matter if it is not till the next day. If they should go off they will come back to the limb as soon as they find their queen is not with them, and cluster there again, as I have had them do when conducting experiments along this line, I even holding them thus until they had started several combs, evidently concluding to make their future home on this limb. I at first thought, when they started off so, that they would return to the parent hive on coming back, instead of seeking out the limb; but the queen is of all-absorbing consequence to any swarm, and so they come back to her every time."



THE subscription-list of GLEANINGS continues to grow apace, for which we are very grateful.

REPORTS in regard to wintering are unusually favorable this spring, notwithstanding the winter has been very severe in many localities.

WATCH your State Legislature during these closing days. Some bills are liable to be rushed through; and if you do not look out, some of them may hurt your business.

IN our issue for March 15, page 227, I referred to the fact that a bill had been introduced in our Ohio Legislature, classing sweet clover as a noxious weed, and requiring it to be destroyed by the township trustees. We sent out something like 1000 circular letters to our subscribers in this State, besides personal letters to some of our Representatives and Senators, and now we have the practical assurance that the bill will be pigeonholed in committee, and the present session of the Ohio Legislature is drawing to a close.

GIVING INDOOR BEES A CLEANSING FLIGHT, AND THEN PUTTING THEM BACK IN THE CELLAR.

THE bees in our bee-cellars have wintered nicely. The larger portion, as will be remembered, were in our home cellar, comprising nearly 300 hives, and these, many of them, two and three frame nuclei; and yet they came out bright and healthy.

One or two nuclei succumbed, but they were very weak.

During the last days of March there was considerable roaring among the bees, and it seemed necessary to quiet them down. Mr. Wardell finally suggested taking them out on the first warm day and giving them a flight, and then returning them. This was done with the bees in both cellars, and the results were eminently satisfactory. In our first trial test, we took out 25 or 30 colonies, that were quite uneasy. We gave them a flight, and put them back, and, presto! they were quiet, while those that had not had a flight were uneasy as before. These were put out, and they too became contented.

I believe it has been stated that it is a waste of time and labor to give indoor bees a flight during mid-winter or early spring; but our own experience does not seem to prove the statement.

When we put the bees out in the first place we numbered and marked their location, so that in a month hence when they are put out again they will go back in exactly the same places.

EXPERIMENTS IN MEASURING THE TONGUES OF BEES AT THE MICHIGAN EXPERIMENT STATION, LANSING.

We have been favored with extracts from a bulletin about to be issued from the Michigan Experiment Station on the subject of measuring bees' tongues. They are as follows:

REPORT OF 1897, PAGE 128.

A great many queens have been bred for the purpose of testing the question whether a strain of bees could be produced which would be characterized by long tongues. The tongues of several bees of each colony were measured, and were found to average as follows: Black, 4.2 mm.; hybrid, 4.9 mm.; Italian, 5.2 mm. One colony of Italians was found whose tongues measured 5.3 mm. The drones from this colony were allowed to fly at will, and the others were kept down. As a result we have in the yard at the present time one queen the tongues of whose progeny measure 5.41 mm.

This result is very encouraging and leads us to continue the experiment.

REPORT OF 1898, PAGE 141.

The continued experiment on bees' tongues did not make such marked progress as it did last year. At the beginning of the season the longest tongues in the yard measured 5.41 mm. One direct cross was made; but, owing to the large number of drones from common stock in the surrounding country, no other queens were satisfactorily mated. The bees from this cross have made a gain of .9 mm., and now measure 6.31 mm. The experiment will be continued.

REPORT OF 1900, PAGE 90.

The continued experiment on lengthening the tongues of the bees so that it will be possible for them to reach the nectar in such flowers as June clover, has been carried on with little success, the average lengths of the tongues of those colonies under experiment being no longer than a year ago, the principal difficulty seeming to be the failure of the desirable mating of queens. When this difficulty can be overcome it may be possible to breed a strain of bees superior to any thing now known.

There seems to be, from the above, quite a variation, all the way from 4.2 millimeters in blacks to 6.31 millimeters in Italians bred by selection. These figures, converted into hundredths of an inch, stand respectively 17 and 25.

I do not know what these measurements

refer to, although I assume they relate to the whole tongue-length and not to the tongue-reach. At all events, the experiment shows a great variation, and gives us some encouragement that we may be able to accomplish something providing we can control the male parentage.

NEW YORK'S RECENTLY ENACTED ANTI-BOGUS-HONEY LAW.

IF there is a bee-keeper anywhere in the great State of New York who works unstintedly and unselfishly for the industry of which he is a representative, it is Mr. W. F. Marks, of Chapinville, President of the New York State Association of Beekeepers' Societies. The great city of New York has been headquarters of late for bogus honey. Every thing would pass muster in that great metropolis, and then would be scattered far and wide.

Some little time ago I asked President Marks if it would not be possible to get a law that would better protect bee-keepers. He immediately wrote back that the matter was under consideration, and that he himself would do all he could to get the law amended. The following letter from Mr. Marks, dated March 24, will fully explain itself:]

Mr. E. R. Root:—I hand you herewith a copy of our new anti-bogus-honey law, or as much of it as relates to honey. You will observe that the provisions relative to honey are the same as in the original draft, except the words "strained honey," which were added before the bill was introduced. The duties of the commissioner, and penalties for violation of the agricultural law, were already provided for in other sections of said law, abstracted from which are annexed thereto.

It passed both branches of the legislature, without amendment. I received word from Albany Saturday that it had been approved by the Governor. The act takes effect immediately. The Hon. Jean L. Burnett, of Canandaigua, who secured the passage of our foul-brood law, introduced and had charge of this bill.

Our slogan is, "Human foods should be sold under their proper names; misbranding is a fraud; honey is the natural product of the honey-bee; and the word 'honey' in any form must not be used as a brand for glucose, syrups, and cheap compounds." Chapinville, N. Y., Mar. 24. W. F. MARKS.

The text of the amended sections of the law is as follows:

AN ACT to amend the agricultural law relative to prevention of disease among bees, and to add two new sections thereto relative to honey, to be known as sections eighty-a and eighty-b.

Section 2.—Said chapter, three hundred and thirty-eight, is hereby amended by inserting therein, after section eighty thereof, two new sections, to be known as sections eighty-a and eighty-b, and to read respectively as follows:

Section 80-a.—*Defining honey.*—The terms "honey," "liquid or extracted honey," "strained honey," or "pure honey," as used in this act, shall mean the nectar of flowers that has been transformed by, and is the natural product of, the honey-bee, taken from the honey-comb and marketed in a liquid, candied, or granulated condition.

Section 80-b.—*Relative to selling a commodity in imitation or semblance of honey.*—No person or persons shall sell, keep for sale, expose or offer for sale, any article or product in imitation or semblance of honey branded as "honey," "liquid or extracted honey," "strained honey," or "pure honey," which is not pure honey. No person or persons, firm, association, company, or corporation shall manufacture, sell, expose, or offer for sale any compound or mixture branded or labeled as and for honey which shall be made up of honey mixed with any other substance or ingredient. There may be printed on the package contain-

ing such compound or mixture a statement giving the ingredients of which it is made; if honey is one of such ingredients it shall be so stated in the same size type as are the other ingredients; but it shall not be sold, exposed for sale, or offered for sale as honey; nor shall such compound or mixture be branded or labeled with the word "honey" in any form other than as herein provided; nor shall any product in semblance of honey whether a mixture or not be sold, exposed, or offered for sale as honey, or branded or labeled with the word "honey," unless such article is pure honey.

ABSTRACT FROM THE AGRICULTURAL LAW RELATIVE TO PENALTIES.

Section 37.—Every person violating any of the provisions of the agricultural law shall forfeit to the people of the State of New York the sum of not less than fifty dollars nor more than one hundred dollars for the first violation, and not less than one hundred dollars nor more than two hundred dollars for the second and each subsequent violation. When such violation consists of the manufacture or production of any prohibited article, each day during which or any part of which such manufacture or production is carried on or continued, shall be deemed a separate violation of the provisions of this article. When the violation consists of the sale, or the offering or exposing for sale, or exchange of any prohibited article or substance, the sale of each one of several packages shall constitute a separate violation; and each day on which any article or substance is offered or exposed for sale or exchange shall constitute a separate violation of this article. When the use of any such article or substance is prohibited, each day during which or any part of which said article or substance is so used or furnished for use, shall constitute a separate violation, and the furnishing of the same for use to each person to whom the same may be furnished shall constitute a separate violation.

Section 2.—This act shall take effect immediately.

I have read over this law, and I can not imagine how any thing can be more specific or more sweeping. If the officers whose duties it is to enforce this law perform their duty at all, the whole State of New York will be very largely, if not wholly, free from the adulteration of honey.

The time was, not more than three or four years ago, when Chicago was the head center of adulteration, simply because there was no anti-adulteration law that could be made sufficiently effective. But a law was finally passed, so that to-day in Chicago scarcely a pound of adulterated honey can be found unless properly labeled; and such goods, of course, will not sell.

We are now looking forward to a similar result in the city of New York; and you may rest assured that W. F. Marks and the various members of the society with which he is connected will leave no stone unturned to bring about a proper enforcement of the law above given.

Ohio has a good law against the adulteration of food products, and it is well enforced. If we can get a few more States to go and do likewise, bee-keepers will begin to see a rise in price of honey.

California had a good law; but those whose duty it was to enforce it have practically taken the teeth all out of it, so that it is only partially effective. If our friends on the west coast can get a law such as there is in Illinois, Ohio, and New York, and get some men back of it who will see that it is enforced, we shall get this adulteration business pretty well corralled. As the matter now stands, there is nothing to prevent carloads of honey in California from being adulterated with glucose, and

then being sent East; but, thanks to our New York friends, they would not be sending any more such goods into the State of New York without getting into trouble.

THE BEE AND PEAR-BLIGHT; THE SITUATION IN CALIFORNIA.

OUR readers will remember that trouble arose last summer between the pear-growers on the one side and the bee-men on the other, in the vicinity of Hanford, Cal., a great fruit-growing region near the center of the State. The first mentioned alleged that the blight that was killing their trees was scattered by the bees, because the microbes causing the disease, and which they claimed was in the nectaries of the flowers of affected trees, were scattered by the bees to the nectaries of flowers of healthy trees. In this contention they seem to be sustained by one or two scientific men of some prominence.

As a member of the National Association I appeared at the scene of the trouble in behalf of the bee-keepers. The result of our meeting was that a compromise was agreed on, by which, for the purpose of experiment, all bees in a given vicinity were to be removed by the bee-men voluntarily for one season, to determine whether the spread of pear-blight could be mitigated.

When I left, there was good feeling; but in the mean time there have been various stray shots fired back and forth at different times. The pear-men, in two or three instances, accused the bee-keepers of bad faith, but unjustly, as I know from facts in my possession.

A month or so ago a statement was broadly scattered throughout the East, to the effect that Mr. Downing, near Hanford, one of the largest if not the largest pear-grower in California, had stated in a public meeting that there were certain counties in the Eastern States where it was unlawful to keep bees within five miles of a pear-orchard. As I had met that gentleman, and had a very pleasant chat with him, I immediately sat down and wrote him, asking him to give me the names of the counties and States in which such laws or ordinances were in effect. At the time of doing so I sent a copy of that letter to Mr. Brown, President of the Central California Bee-keepers' Association. The latter immediately, on receipt of this, it appears, wrote Mr. Downing, asking for information.

At the time of sending this letter Mr. Brown sent one to me, which reads as follows, and which explains the final outcome of the situation:

Mr. E. R. Root:—I have your letter of March 18 regarding the published statement of Mr. Downing, where he said that he knew of places in the East where it was unlawful to keep bees. Mr. Downing made this statement before a mass meeting in the Superior Court room in Hanford, at which I was present. I at once called for the particular State and county, but he was unable to give it. I then called for the source of his information, when he stated that his brother had just arrived in Seattle, and that a man there had told him that he had a letter from his friend

somewhere in the East to the effect of the law as above referred to; so you will see it is only hearsay, and I have no faith in the matter whatever; but as soon as we can find out for sure that he is publishing only hearsay, then I think the statement should be published as it is, setting forth Mr. Downing and his statement in a true light. His statement as to \$10,000 loss in pears is another exaggerated remark, I think, but I have no means to disprove it.

The way the bee and blight question was settled is this: The two committees came together on February 22, and, after much deliberation, mapped out a section two miles square, as a matter of test, and agreed to move our bees three miles from the two-mile line, and left it to the fruit-men to see that all the bees that belonged to the fruit-men, and a farmers not in the Association, be moved. This they agreed to do, but they are not succeeding, and it will spoil the test.

Some are complaining of poison, but I am not yet sure that poison has been put out this spring, although last fall there was. We gathered up some of the bees and had them analyzed, and it was reported that they were poisoned by arsenic.

California has had plenty of rain for another big crop, and I am afraid that the market will begin to weaken at the first report of new honey; and should Southern California not get in position to hold the bulk of the product until as late as August or September, then I can not see but we still have repeated the same results as we experienced last season.

Hanford, Cal., Apr. 2.

F. E. BROWN.

There is a possibility that bees carry the virus of pear-blight. If they do, all kinds of insects that are so abundant in California, that visit the flowers, are helping to do this mischief. It has been contended by us all along, that, even if all the bee-men were to remove their bees from a given locality, there will be large numbers of wild bees, so to speak, in the rocks and in trees, that are wholly beyond the control of man. These alone would be sufficient to cause all the trouble. But suppose all the wild bees as well as the tame ones could be removed; there would still be hordes of insects that would scatter pear-blight.

But a most significant fact against the theory that bees are the sole means of conveying the virus from tree to tree while in bloom is this: Young trees that have never been in bloom—acres and acres of them—were fearfully blighted last summer. Our committee called the pear-men's attention to this, and asked them what explanation they had to offer. One of them said, "I think that bees crawl all over these young trees." Some bee-keeper offered to give him five dollars for every bee he could find crawling around on those little sprouts sticking out of the ground, on which there had never been any bloom.

Later.—Since writing the foregoing, a letter has been received from President Brown, inclosing one from Mr. Downing, who, under date of April 3, writes:

Mr. F. E. Brown. Dear Sir:—In answer to your letter of the 2d inst., and in order to give you fully what information I have regarding the subject mentioned, I inclose herewith a letter received from Prof. Buckhout, of the Pennsylvania State College, which will show that, whereas I was given to understand that the laws referred to had already been passed, they have up to the present time been only proposed.

Armona, Cal.

CHAS. DOWNING.

The letter from Prof. Buckhout was not inclosed; but from the admission of Mr. Downing there are no such laws as he is reported in all the papers to have said were in existence. Will those same papers now give the correction?



THE ALLEY vs. THE DOOLITTLE METHOD OF QUEEN-REARING.

Grafting Queen-cells; is it True that Artificial Cell Cups Cause Queens to Fail?

BY ARTHUR C. MILLER.

Some time ago I stated that the Alley system of queen-rearing was superior to the cell-cup plan; that the latter, except in the hands of a skillful manipulator, was likely to produce many inferior queens. Dr. Miller and some others questioned the correctness of my position, and the doctor called for my reasons.

A careful perusal of the bee-papers will, I think, plainly show a very noticeable increase in the number of reports of "missing queens," "superseded queens," "failing queens," etc., since the introduction and extensive adoption of the cell-cup plan. It is but fair to presume that part of the increase in such reports is due to closer observation, but that can not be accepted as the reason of the whole of the increase. A part of such reports may be attributed to queens injured in transportation by mail; but even with such allowance there still confronts us an increase which seems to be inexplicable unless a large number of the queens produced in the last few years are inferior to those produced previously. Is or is not that the case? During the past six years the cell-cup plan has been exploited far and wide, and with scarcely a warning word. The system was put forth as being one which would enable us to approach more nearly "Nature's way," but does it?

Under natural conditions a queen lays an egg in a cell. For three days the embryo in this egg grows, the nourishment for the forming larva being the vitellus, or yolk. On hatching, it receives a food prepared in the stomach of the nurse-bee, consisting of honey and pollen acted on by the digestive secretions of her body. If the larva is destined to become a worker it receives such food for approximately three days, after which a gradual change takes place. According to Dr. A. de Planta's analysis, the solids in the food of the worker larva, before the fourth day, consist of albumen 53.38; fatty substances 8.38; sugar 18.09 per cent. After that time the proportions of the same elements are respectively 27.87, 3.69, and 44.93 per cent—a very decided change. According to the same tables a larva destined for queen receives of albumen 45.14; fatty substances 13.55; sugar 20.39. These figures are taken from Mr. Cowan's book, "The Honey Bee," page 123. Mr. Cowan also quotes Dr. de Planta as saying that, for the first three days, the food of queen-larvæ is the same as of the

worker larvæ for the same period (p. 122), and that "queen larvæ were fed the same food during the whole term of their existence." There is a discrepancy here which needs investigating. What I desire to impress on the mind of the reader is that, with each varying stage of the development of the embryo—that is, from the commencement of the incubation of the egg until the larva spins its cocoon, there takes place a change in the proportions of the elements of the food. It is of vital importance that these changes occur at the proper time if the embryo is to develop normally. It should be borne in mind that the larval bee is as truly a developing embryo as is an unborn mammal.

Now, if we take a worker larva two or three days old and transfer it into a mass of "royal jelly," we suddenly and violently change the conditions necessary to its proper development. Recently it has been shown that, soon after these transferred larvæ are given to the bees, all traces of the "royal jelly" are removed, and that for a greater or less period these larvæ are without food, which is to be considered as another shock to the developing embryo. Other factors against the transferring system are the danger of touching the larva with the transferring spoon, the chilling, or the exposing to hot, dry air the delicate organism. Now, while the transplanted larva may survive all this, and may develop into a large fine-looking queen, it is not the slightest proof that she is perfectly developed or constitutionally strong. Judging from analogy it would be more likely that she was defective or of weakened constitution. The increased reports of "failing," etc., queens, seems to sustain this contention.

There are two other factors which should be alluded to before leaving this part of the subject. The first is that, in the hands of the *average* manipulator, larvæ *over* rather than *under* two days old are used. Many persons seem unable to judge correctly of the age of a larva by its appearance. The second is that, by the Pridgen method of transferring the "larva, cradle, and all," there is less chance of incurring several of the before-mentioned evils.

One feature of the cell-cup plan has been exploited as most valuable, whereas it is the most dangerous. I refer to the claim that cells so started can be handled more readily and with greater safety. A more harmful and dangerous propaganda can scarcely be imagined, for it engenders careless treatment. The cells containing the young queens should be handled as if they were made of spun glass.

In regard to the rearing of queens in upper stories, Mr. Alley has this to say: "I long ago discontinued rearing queens, or, rather, having cells finished in upper stories. Queens so reared, except in the flush of the honey-flow, are as worthless as flies." Why this is so, it is difficult to say, but presumably it is due to the larvæ

not receiving proper food at the proper time.

With the Alley system, as now practiced by that veteran, either eggs or larvæ not over *six hours* old are used—a practice as close to “Nature’s way” as at present seems possible. Recently Mr. Simpson objected to Mr. Alley’s use of a *match* for destroying larvæ in the alternate cells, on account of the brimstone. As I understand it, Mr. Alley uses a match simply because it is a handy bit of wood with a smooth, rounded end; and as he uses the hard-ended “parlor-matches,” no brimstone or other deleterious substance is left in the cells to be removed by the bees.

The cell-cup plan has much against it and little in its favor. It requires much time and the most delicate manipulation, and at its best is surrounded with many dangers. The Alley system is safe, simple, easy of operation, and if the results achieved by the most careful and observant members of our profession are any criterion, it must be acknowledged that the Alley system produces uniformly better queens than any other system that has as yet been tried.

Providence, R. I., Feb. 25.

NUCLEI MANAGEMENT.

The Swarthmore System any thing but a Success; an Experience.

BY QUEEN-BREEDER.

I struck the Swarthmore system of “nuclei management” with a full head of steam on, May 25, 1901. The season in this locality was very backward, with cold winds and rain almost daily up to June 1, and I lost several colonies of bees in wintering; and this led me to take an interest in the article in the May 15th number of *GLEANINGS*, page 434, which showed in such a plausible way how to fertilize queens in nucleus colonies with so little expense in bees, time, labor, care, etc., that I became a convert to the system at once. As I had never before tried to get queens fertilized in less than three or four frame nuclei, this system was, therefore, entirely new, and so I determined to follow the details *very* carefully.

I have had no experience with Swarthmore’s system of queen-rearing up to the time of the hatching of the queen, as I have my own method, which I prefer to all others, and the same I suppose is true of all queen-breeders.

I had about 380 fine cells due to hatch June 1st; and May 25 I had prepared 42 frames, $8\frac{1}{2} \times 17$ inside measure, each holding 8 section boxes $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$, with foundation starters. In sets of seven each these frames were placed in eight-frame hive-bodies—56 boxes in all to each body, all having been previously fitted with covers with zincs, flight-holes, etc.—covers, of course, being left off for use later on.

Now, here comes up the first query in practice, and not explained in the Swarthmore article referred to. I am directed to hive a good-sized swarm (natural or forced) into a hive-body, etc. I don’t happen to have a natural swarm at this time, so I must hive a forced one. Whence shall I obtain it? I have several full colonies in fairly good shape to meet the full honey-flow which I am expecting soon, and which has, in fact, already commenced—a rather bad time to remove bees; but I have started in, and I will see it through, so I select a full colony. Of course, it won’t do to drive out *all* the bees and queen, so I set a full colony to one side and in its place put the hive-body with 7 frames as above. I now brush from the frames of the old colony as many bees with the queen as I can without too much depopulating the parent stock; and these with the field bees give me a strong colony. I do the same thing with five other colonies, and await results. Although honey is coming in I want to be on the safe side, so I give the bees half a pint of sugar syrup with a Boardman entrance-feeder, nightly. Honey is now coming in quite freely from dandelion and other sources.

Now, Swarthmore says that, in a few days, a good prolific queen will have filled these little combs with eggs, so on the 28th I take a peep into a colony. On the first frame, north side, I find about half of the combs partly drawn out, with upper rows of cells filled with honey, and capped. The other half of combs are in various stages of advancement, some being without honey, others with the cells partly filled and not capped, but none containing eggs. The next three frames are in about the same condition, with a larger percentage of capped cells, but no eggs. In the three remaining frames I find the combs with honey in the upper portion, and eggs in the cells not filled with honey.

The remaining five colonies are in about the same shape, which is evidently not the exact condition for forming nuclei *a la* Swarthmore, so I think I will wait a little until the queen takes a notion to deposit some eggs on the north side, when all will be well; so I close the hives until the following day, when I open for inspection the one first examined the day before. On frame No. 1, north side, I find several eggs in each comb. On No. 2 I find the queen attending strictly to business, and eggs in every available cell. Nos. 3 and 4 present about the same condition. The three remaining frames which contained eggs the day before haven’t a single egg, but are either empty or partly filled with honey. Ye shades! Where’s Swarthmore, Dr. Miller, Doolittle, Alley, Root—somebody who knows more about this business than I do?

Well, if this kind of thing continues I certainly shall not have the nuclei in proper condition for queen-fertilization by June 1, so I do the only thing that suggests itself. I go to full colonies, and remove as many frames of honey as can be spared,

and give these to the forced colonies. I spread the brood-nest of the *full* colonies, and fill the empty space with frames of section boxes with foundation starters as before. I also remove from the *forced* colonies all boxes containing eggs and honey, and place them for safe keeping with the parent stocks. By thus manipulating I succeeded in getting, by May 31, 336 section boxes with eggs and honey; but this was done, of course, at the expense of breaking up and seriously disturbing several full colonies, and the end is not yet. The next step is to people these boxes with bees and queens. I have six queenless colonies of the parent stock spoken of above, and think these will be just what I want; but upon inspection I find that, if the boxes are peopled from these colonies alone, it will take all the bees, and ruin the colonies, unless I give them only one frame each; but this will require 42 queenless colonies; two will require 21, etc.

Hi, there! Swarthmore, *et al.*, come to the rescue! I refer to the article in question for light. I find this: "Then hang the frames in the hives of such bees as you may have just used in getting a batch of cells or any queenless and broodless bees you may have at the time." Now, the fact is I am quite particular *not to have* a colony of queenless and broodless bees in my apiary at this season of the year (I rear my queens by the supersedure method in upper stories, and three or four of these will furnish me with 1000 to 1500 queens in a season). I finally removed all frames from the original six colonies, and put in their place the section-box frames, giving five frames to each—all that can be accommodated after the covers are on. I dequeen two more colonies, and give five frames to each. The two remaining frames I place in the upper story of a supersedure colony by way of experiment, with the result that the queens that hatched in these latter section boxes were promptly killed by the bees. Before placing the section boxes in the various hives I adjusted a selected queen-cell to each comb. On the afternoon of June 1 I inspected and found queens in nearly every one, supplying such as had failed to hatch, or were not up to the standard of vigor, with a strong active virgin queen.

The boxes now had each a queen and a full complement of bees. These were to remain five days, according to Hoyle—I mean Swarthmore. In the mean time a little sugar syrup was fed each day. On the fifth day, the weather being unfavorable, the bees were not disturbed until the following day when all were removed to stands some distance from the parent stands, and fastened to stakes as illustrated on page 436, but with four flight-holes on each side instead of three. Going over all carefully I found four dead queens, which I replaced. Toward evening I opened the flight-holes as directed; and, as the next few days were pleasant, I watched developments.

To be Continued.

AN EXPERIMENT AND APPARENT RESULTS.

Made a Successful Attempt in Curing Foul Brood with Sulphur Smoke.

BY T. F. BINGHAM.

About the beginning of the buckwheat honey-flow last season a very full colony sent out a prime swarm which was given one of my fractional hives full of clean empty combs, but no honey below it; two fractional hives with full sheets of heavy foundation; room enough, but none to spare. The queen, though an old one, stowed in the eggs, and soon the full combs were filled with new honey and brood, and the queen passed down to the new combs, and, after filling them, gave out, and the bees reared a new one, and matured the brood so that very little was left to develop, but a fine colony occupied the entire hive. Mr. Hetherington was at my place, and I wished to show him my first buckwheat colony. When opening it we found a non-laying queen and a few black dead larvæ scattered at intervals among the empty cells when, evidently, the brood had just matured. Mr. Hetherington said there was no doubt that the dead brood was such as had made trouble in Eastern New York. It filled the description given in the journals so far as we could decide. I told him I would try an experiment, and watch results. I gave them an unfertile queen five days old; and when darkness came I smoked the bees, thoroughly at the entrance, and at the top of the hive, and at the two joints between, with pure sulphur smoke. The following night I gave them the same treatment, but stopped the exits from the hive and compelled the bees to stay a while. Just as the young queen had begun to lay, Mr. H. was again at my place, and, of course, we examined the first prime buckwheat swarm to see if the combs had still in them evidence of disease. Nothing could have been cleaner or in better order. The question, so far as cleaning out the few dead larvæ was a factor, was complete. One factor, however, remained; viz., would the disorder develop again? I kept watch of the brood, and nothing could have been finer or more abundant. The queen laid abundantly till the flowers failed, and no signs of weakness or dead brood appeared.

The query will naturally arise, "Was the sulphur smoke the cause of the change?" The reason I have given this experiment publicity is because I am not likely to have an opportunity to test the experiment again; and while I do not like to say much, based on a single experiment, others may find it of value.

When at Thompsonville, at the Michigan State Bee-keepers' convention, and The A. I. Root Co. was represented, and Mr. Hutchinson and Mr. Hilton and Mr. Rankin and many others not so largely known were present, I stated to the convention that I thought it reasonable that sulphur smoke

would do more to arrest and control foul brood than any thing that had been tried.

The prejudice or superstition is so marked and general that the only thing to do was to stamp out, on the old plan of cremation, any signs of trouble, that little discussion followed.

Undoubtedly those who were there had never read of such a method, and acted with usual caution, and on the motto that it is better to suffer wrong than to do wrong. The treatment would be regarded as under the head of cruelty to animals, by many. The future, as in the past, may demonstrate that sulphur smoke as a disinfectant or spore-destroyer has no equal, and is as applicable to bees and combs and hives as to pest-houses, etc.

I may remark here, that sulphur smoke does not kill bees if allowed fresh air soon after it is applied. The odor, however, remains in the hive and among the bees for several days, but in no way disturbs their general actions. The smoke should be applied at night after the bees are mainly quiet, so that they may recover in time for the morning's duties.

If sulphur smoke will kill germs and spores it may also kill eggs, and work more injury than might be expected. My experiment was free from eggs and larvæ, and could not be regarded as a test in that sense.

I shall test the effect on eggs and larvæ that have no disease. If it will dry up dead brood and immature larvæ, foul brood and similar disorders will lose their terror.

It is well known that bees will not remove gelatinous substances from their combs, and it is probable that they would not dry matter, except to accommodate immediately the instinct to produce brood.

Farwell, Mich., Feb. 24.

[Sulphur smoke is a strong germicide; but I should question whether it would kill the *spores* of foul brood, especially if those same spores can resist the temperature of boiling water for an hour or more.—ED.]

ALFALFA IN KANSAS AND NEBRASKA.

How it Yields Honey in Unirrigated Lands.

BY CARL F. BUCK.

Mr. Editor:—On page 179, March 1, in one of Dr. Miller's Stray Straws, you and he both claim that alfalfa does not yield honey except on irrigated land. This Straw is surely a stray. I don't know what we would do if not for our alfalfa. Last year our fruit-bloom and alfalfa were our only honey-plants, and my bees averaged between 35 and 40 lbs. surplus per colony; besides, I sold many nuclei and queens from my 192 colonies, spring count. This honey was all gathered from alfalfa in the short time of about two weeks. After this we had the great drouth, and our fall flowers did not furnish any honey to speak of. Not

only does my locality furnish alfalfa honey, but so does all the bottom lands along the Arkansas and Kansas Rivers and tributaries. Two years ago I purchased 150 colonies of bees in Chase Co., on the Cottonwood River. These bees were located in large alfalfa-fields. When examining the bees I found they had produced large quantities of alfalfa honey, and they were not cared for at all. They were in all kinds of cheap hives, some open at top so wide one could put his fingers in; covers warped, etc. The manager reported that he had lost at least 40 colonies that spring by spring dwindling. Should this apiary have been run with Danz. hives, that have no such cracks as above hives, and been cared for as they should, I see no reason why this locality would not have yielded over 100 lbs. per colony surplus from alfalfa only, besides some other flowers on the bottoms and prairies.

Alfalfa does not seem to do much good in Missouri, Illinois, and other more eastern States; but in Nebraska, Kansas, Oklahoma, and Indian Territory alfalfa on the bottom lands does yield honey, in some quantity at least, and in many localities it yields it in abundance—but, of course, not like the irrigated districts of Colorado and other western States. Come out here some time, Mr. Editor, about June 1st to 15th, and I'll prove to you that our alfalfa does yield honey. I might add that our locality, Butler County, is now overstocked, so we don't ask any H. O. G. to come in. You see, only just here and there are these alfalfa-fields, so there is no large number of colonies in one location.

Augusta, Kan., Mar. 22.

[Thanks for your invitation. The next time I make a general tour westward I'll stop in your country.]

I had always supposed that no nectar was secreted from alfalfa in unirrigated lands.—ED.]

DAD'S ADVICE.

BY HARRY LATHROP.

Now, Lewis, when you see a maid
With face so very pretty,
Just think of that old maxim true,
And this my little ditty.

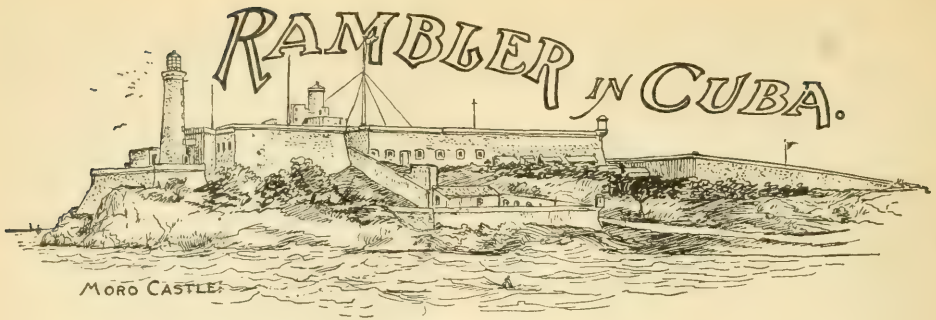
"Handsome is as handsome does,"
Nought repays the one who loves
But the worth of heart and mind,
These with beauty well refined.

To the lover's eager eyes,
Beauty may her faults disguise,
And the plainer face reveal
That which dress may not conceal.

Plainest surface may but cover
That most worthy of a lover;
Let each merit have a portion
Of your heart's sincere devotion.

If you follow my direction,
Kindly given for your protection,
You perchance may sooner find
Beauty, strength, and worth combined.

Then when you have made selection,
Love may not avoid detection;
What to say, I will not mention,
That must be your own invention.



RAMBLE 200.

A Visit at W. W. Somerford's; More Troubles with Spanish; Calzadas; Scenes on the Train.

BY RAMBLER.

Before coming to Cuba I had some correspondence with Mr. W. W. Somerford in relation thereto. In fact, Mr. Somerford was the first person to put a Cuban bee in my hat; and now being on Cuban soil Mr. S. was one of the first bee-keepers for me to find outside of Havana. Caimito, his home, is 20 miles west of Havana. Mr. Craycraft gave me full directions to find him. First, take the train ten miles to Marianao, then by stage. There is a little bit of a twist in the pronunciation of all of these Spanish words, and Marianao is not an exception; and the more I repeated it the more it became "Marry-me-now;" then my horror increased when I found the station filled with ladies of all colors and sizes. In order to proceed it would be necessary to ask questions. I asked a policeman the way to Marry-me-now. He evidently didn't know, for he shook his head and said, "No sabe." I exhausted all the resources in the male line, and then desperately turned to the ladies. It was "no sabe" here too; but they were kinder than the men. I had asked the way to Marry-me-now, and clustered

around until a petite jewel of a woman took interest in the matter, and remarked, in good English, that I was evidently on the wrong line; that Marry-me-now lay through the priest's office, and the price of the ticket was from \$20 to \$40.

Well, the good lady set me right, and in the brief visit I learned for a wonder that her name was Brown—widow Brown—of Matanzas. She has a place out there, splendid for bees, and for rent, at \$100 per month; and as the train pulled out, the matter was left open for further negotiation. There is no knowing what will come of that slip from Marianao to Marry-me-now.

I discovered various new things on this little journey. One of them is, that there is not much of a color line here; and although there is a first, second, and third class on the train, white, black, and creole can secure the best by paying the better rate.

Another discovery, after it was too late. Widow Brown called my attention to it. I asked for a ticket without specifying the class, and in such cases the ticket agent is sure to give you the highest-priced, and a return at that. I regretted it, for it took me to another car away from widow Brown.

After changing from rail to coach I discovered all colors here, and nearly all of the ladies were bareheaded, or with the black mantilla thrown gracefully over the head.

Nearly all the men and boys were smoking. The Cuban next to me smoked three big cigars while going that ten miles. If any one wishes to start a reform on the line of tobacco-using, Cuba offers a fine field. Women are often seen with a big cigar in the mouth.

Another thing of interest, and always under consideration in Cuba when locating an apiary, is the calzada (macadamized stone road). These calzadas lead out from Havana in various directions. This one leads 60 miles toward the west end of the island. It is marked off in kilometers, and,



"A PETITE JEWEL OF A WOMAN TOOK INTEREST IN THE MATTER."

according to my cyclometer, that means about $6\frac{1}{4}$ tenths of a mile. These stone posts, with the prominent figures, are of the utmost convenience; for instance, if we wish to find Mr. Somerford, look sharp for his apiary after passing the 29th. Turn in right at 55 to find Harry Howe; just a little beyond 85, to find Mr. Moe. The stage dropped me off at the proper place, just in the edge of the evening.

Mr. Somerford's home apiary is nicely located close to the calzada; and, Mr. S. has a helpmate and two bright little girls, and liable to get stung every day, because the hives surround the house on three sides.

The photo will give you an idea of the situation. There are over 200 colonies here, and it is a busy place at almost any time in the year. The hives are arranged in double rows, and sheds will be erected over them in due time.

At the time of my first visit Mr. S. had four apiaries and about 800 colonies. At this writing, two months later, bees are being moved and new apiaries established. Mr. S. has very large plans. His ambition now is to get up to 2000 colonies. When he gets that number there is no telling how many thousand more he will want.

He has, in certain respects, outgrown the calzada plan, and is locating apiaries along the north coast some ten to fifteen miles from his residence. Along this coast several little bays lead inland, and upon them are the apiaries. The idea is a good one, for from these points cheap water transportation can be secured. A schooner can be run to the vicinity of the apiary, and the honey loaded without the intervention of the

cart or mules or oxen. When taken into Havana harbor, other expenses are saved. All of these items count when honey is selling for only 34 cts. per gallon.

On one of these bays Mr. S. has an apiary which he termed the "Rambler's Retreat." He had an idea that I would like a real retired place in which to work bees, where I could fish and swim, and be far, far away from the wiles of the fair sex; but when I saw the location I strenuously objected to being buried alive. Said retreat is five miles from the calzada, and such a five miles of road you never saw. All of the traffic on these byways is done with big two-wheeled carts drawn by oxen; and the carting is so infrequent that the road degenerates into a mere cow-path, with the cow-path huddles, and in places rocks and stones. A bicycle can be worked over it by alternate riding, walking, and falling off; and when the rains come the road is impassable to all ordinary means of locomotion. Even on horseback there is danger of getting mired, while a pedestrian would have to carry a good share of the land off on his boots.

The bee-keeper in the States, who has an idea of coming to Cuba, must take this road matter into serious consideration. If located a mile back from the calzada it costs as much to get the honey over this mile as it does to haul thirty miles on the good road. To own a mule or ox team means quite an expense. A good yoke of oxen costs from \$200 to \$300, and a span of mules from \$200 to \$500. Even Mr. S., with all of his bees, present and prospective, depends upon his neighbors for all of his freighting. It is



W. W. SOMERFORD'S HOME AND APIARY.

cheaper to hire it done than to keep and feed a team.

The bicycle answers all purposes for running from one apiary to another, and the wheeling on the calzada is sublime; but it is only a step to the ridiculous. Just turn into one of those side roads, and you have it, just as I will show you a little later.

Apiaries are plentiful along the good roads, and bee-men are somewhat jealous of their honey resources. Cuba is not all bee-pasturage. There are extensive areas along the calzada where but few honey-plants are visible; and I am assured that, in some places, bees would scarcely make a living. The honey-yield from which the bee-keeper secures his revenue comes during the months between November and April. Owing to the shortened days of winter the bees work on an average about four hours.

Though the nights are not so cool as in California, still they are cool enough to drive the bees to the brood-chamber, and it

gin to swarm, and keep the bee-keeper busy with a rapid increase.

Mr. Somerford was well supplied with helpers, and I herewith introduce them to your readers. First to the left, Mr. Somerford; next Mr. Faulkner, from New Jersey; Mr. Livingstone, Mr. Wade, and two Cuban boys. Observe the machete on Nicano, ever present on a Cuban, and the scarf around the neck of Frederico, and in such a mild climate! We shall have more of this apiary in our next.

NOTES OF TRAVEL.

Bee-keeping in and about Los Angeles; some of the Characteristics of the Business in California.

BY E. R. ROOT.

The conditions as well as the methods which prevail in California are somewhat different from those in other portions of the United States. The great bulk of the honey produced is extracted, and one of the reasons for this is, doubtless, owing to the fact that a very large part of the product must necessarily be shipped out of the State. Another reason is, that the honey from sage is not inclined to candy, and because it keeps liquid so long it can be sold anywhere.

As a general thing the hives I saw in California were home-made, and poorly made at that. Some of them had seen ten or twenty years of use, and were somewhat the worse for wear. But in that climate almost "any thing goes" so long as it will hold together and protect the bees from the hot rays of the sun, and from the rains that last for a comparatively short time.

If there is any place in the United States where bee-keeping is conducted on an extensive scale it is Southern California. As a general thing, non-reversible or two-frame extractors would be considered mere toys. The extensive bee-keepers on the coast will have nothing smaller than a four-frame reversible machine. This they want mounted on a slight elevation on the side of a hill. The honey runs from the extractor into a spout that connects with a ten or twenty ton galvanized-iron tank. Talk about letting the honey run into a tin pail and then lifting the pail and dumping it into a can—why, those fellows would laugh at you. They want things handy, and they have them so—all but the hives. Of all the miserable contraptions that some of those big bee-keepers will put up with! I never saw the like. Brood-frames—some of them look as if they had been made with a hatchet—and, as I have been told, were actually chopped out with this rude tool. Burr-combs? Yes, they have them galore, because the bee-spaces vary all the way from



W. W. SOMERFORD AND HIS HELPERS.

has been found that bees are slow to occupy section supers and draw foundation; therefore comb honey has been produced to a limited extent. This feature will probably be overcome, for several are experimenting with comb honey this winter. I have an idea that a shallow hive will fill the bill for comb honey in Cuba.

The honey gathered at this season is from aguinaldo, or bellflower, or morning-glory, just which you wish to term it. There are three varieties. The first to bloom is just like the well-known morning-glory of the States. The next is a purple and smaller flower; and the last and most profuse is the white. These flowers are ordinarily all gone by Feb. 1. Then for several weeks ramerillo amarillo comes into bloom. This is a plant of bushy habit, bearing a profuse bloom of small yellow flowers; the honey a light golden yellow, much like the sunflower honey of Central California. In fact, the blossom is a very small sunflower. In March and April, when the weather is warmer, and fruit-bloom is on, the bees be-

the regulation $\frac{1}{8}$ up to 2 inches. Then when the hives were opened, such a mess of broken honey and an uproar, especially if it was toward the close of the season, and the bees were beginning to nose around to see what they could find! But of this I shall have something to say more specifically later on.

To give one something of an idea of the amount of honey produced in California in a good year, perhaps a few figures may be interesting.

SOME POSSIBLE RESULTS IN HONEY PRODUCTION IN CALIFORNIA.

Up to 1901 the seasons had been very discouraging for several years. Then there was a fairly good flow. When the season is favorable, San Diego Co. will average somewhere about 80 carloads of honey; Los Angeles Co. somewhere about 60; Riverside, 75. Taking the counties of Orange, Los Angeles, Riverside, and San Diego together, the enormous aggregate of 500 carloads could possibly be produced in a good season; and it is estimated that this amount was actually harvested in 1896. Some of the old resident bee-keepers of California say these figures are too large, even for a good year. On the other hand, there are apiaries yielding little lots of honey, produced all through the mountain canyons, that never gets out into the general markets, and therefore is not counted.

Some time in the early 60's, I am told, Mr. Harbison, who at one time was thought to be the most extensive bee-keeper in the world, and who possibly has made a record that will never be equalled, owned and operated as many as 6000 colonies; and his average for the entire number, I understand, was something like 60 lbs. per colony, extracted honey. It is reported that a man by the name of Easley, who had come from the East, starting with 500 colonies, increased them to 1200 in one season, and took 180 tons of honey. This was near Santa Monica.

THE DISCOURAGING FEATURES OF CALIFORNIA BEE-KEEPING.

But lest some of my readers may get the impression that there is nothing but gold and honey in California, I think I had better tell something of the other side. Experience has shown, I believe, that there are only one or two good years out of five. In the two or three off years, many thousands of colonies starve to death; and it is only the regular stayers who manage to hold over, waiting for the good year that is bound to come if they can hold out long enough. In Los Angeles Co. alone there were, in 1897, something like 40,000 colonies. At the beginning of 1901, after a period of four bad seasons, it was estimated there were only about 12,000—the remainder, something like 28,000, having probably died off from the continued drouth and the consequent lack of forage.

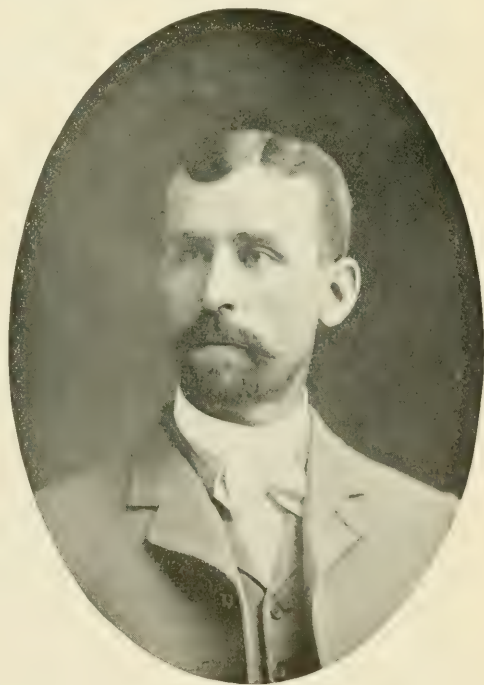
Several bee-keepers who had come from the East to California told me that, although they produced enormous crops of

honey some seasons, they believed that their general average per colony was no larger in California than in the East, and this, coupled with the almost prohibitive freight rates to the markets, makes California bee-keeping no bonanza.

These off years are due entirely to lack of rainfall. Some parts of California require more inches of rain than others. Several bee-keepers told me that, if they could get 10 inches for the southern counties, they would get at least a light crop, and in some portions a good crop would be secured. In other portions, from 14 to 20 inches seem to be required, a good deal depending on the soil and the lay of the land. Down deep in the canyons, where many an apiary is located, and where the sun strikes not more than five or six hours during the day, a small number of inches of water would probably do; whereas in the open valleys more might be required.

A FEW REPRESENTATIVE CALIFORNIA APIARIES.

Having now generalized on the conditions and peculiarities of bee-keeping in Southern California, let us take a look at some of the men and some of the apiaries just as I found them with my little kodak.



B. S. K. BENNETT.

After having visited with Mr. Frank McNay, as spoken of in our last issue, I sought out Mr. Bennett, the editor of the *Pacific Bee Journal*, and later on I arranged for a drive out among the bee-keepers in the immediate vicinity of Los Angeles. A

quick-stepping little horse and a light easy buggy carried us from point to point with a good deal of ease and comfort.

Our first stop was at the apiary of Robert Hitchings, of Verdugo, where there were 200 colonies in the valley at the foot of one of the hills. Two large honey-tanks were located right beside the extracting-house, behind some sage brush, as shown in No. 3, Fig. 1, and the apiary is shown in No. 1 just above. It is located perhaps two or three miles from any dwelling-house, and the tanks were nearly full, or at least we judged so. Situated as they are out in the open, with honey-gates totally unprotected, made, it seemed to me, most inviting objects for thieves; and there was no one present at the yard at the time of our visit. "How easy," I said to Mr. Bennett, as we looked over the premises, "for some one to come here and help himself! He might come every night, just after an extracting, and take off a ton or two, and the owner would never know it. If he were not too greedy, and took just a little at a time, the bee-keeper would work and plod

while the thief would manage to get probably half of his crop."

"Yes," said Mr. Bennett, "this kind of thieving work has been done; but out here in California, if the thief is ever caught he is dealt with most summarily. As a general thing, open tanks like these are not molested."

Then he told me how, evidently, some animal had brushed up against the honey-gate of a ten-ton tank clear full, in one instance, opened the gate and let all the honey run out on the ground; and, such a mess!

Stepping into the buggy again we resumed our journey, for Mr. Bennett seemed to know where every bee-keeper was located, and what his name was.

Our next stop was at the apiary of Rev. C. G. Belknap. This apiary was located in the rear of a rabbitry that had formerly been a brooding-place for Belgian hares; but the industry had not proven to be profitable, and, if I remember correctly, there were only about three or four animals in the building. But, oh the bees! They greeted us before we got anywhere near their



FIG. 2.—MR. WOODBURY'S APIARY.

quarters. They stung us; they tried to drive us off; but still we pressed on. So persistent were they that I found it exceedingly difficult to get a snapshot. I fired one off, and then retreated in haste. But this view was too poor to reproduce.

Our next stop was at the home of Mr. G. B. Woodbury. This gentleman is also an extensive fruit-grower. He had several large orange-groves as well as other kinds of fruit on his ranch. He had recently taken up bee-keeping, and the apiary had something of the esthetic in its appearance, and, indeed, it was in marked contrast with some of the yards I had seen before. The honey-house was neatly painted, the hives were new and modern, and also painted. No. 1, Fig. 2, shows Mr. Woodbury himself, standing by the side of one of his hives. No. 2 shows Mr. Bennett standing in the door of the honey-house.

I ran up on the side-hill to get a good view of the yard. While setting up the camera I had my first experience with a rattlesnake, or what I *thought* to be such. I had been cautioned, as I went up on those side-hills, to look out for those reptiles; for a tenderfoot will be quite sure to blunder on them unless properly warned. Suddenly I heard a peculiar kind of b-z-z-z-z. I had never heard the sound of the rattlers; but as I had been told to run or get out of the way if I should hear any peculiar

sound of that kind, I grabbed up my camera and made a lunge.

"What," said Mr. Woodbury, "rattlers?"

"I don't know," I said in breathless haste; "but come up and look."

"What was it you heard?" he said.

"There! listen!"

He began to smile, and said, "Why, that is a beetle. Don't you have them out east?"

I resumed taking my pictures, without any more comments, and the result is shown in 2; another view, lower down, at 3, and, last of all, a view showing Mr. Bennett with his light gauzy bee-veil on by the side of one of Mr. Woodbury's hives.

Another yard at which we stopped was one belonging to John McClure, at Burbank, or near there. He had, all told, some 500 colonies in three different locations. In No. 2, Fig. 1, is shown one of these apiaries. It is on the side of the mountain, near the edge of an enormous raisin vineyard, which we were almost half an hour in driving through to get to the yard. The hives were of the peculiar California style, not built for beauty. A nearer view of the extracting-house and of the large honey-tanks is shown in No. 4. The wheelbarrow for carrying in the combs stands in the foreground. The extracting-house in this case is on the side-hill, and from the bottom of it runs a spout about 3 inches in diameter, at the top of



FIG. 1.—THE HITCHINGS AND M'CLURE APIARIES AND HONEY-TANKS.

the honey-tank. When one tank is full the spout is shifted over to the other one. In the mean time a piece of cheese-cloth is tied over the top of the filled tanks to allow of evaporation.

The extracting-house and the storage-tanks on the side-hill shown in No. 4, Fig. 1, are representative of dozens that I saw in California. The house is just large enough to accommodate an extractor, uncapping-box, and the necessary tools for working. The hives in this case, as will be seen in No. 2, Fig. 1, are located above on the side-hill. The extracting-combs are set in a barrow or cart, and the load is run downhill until it reaches the extracting-house shown in the lower left-hand corner. The whole arrangement of these California apiaries is such as to provide for honey going downhill all the way, so that about all a man has to do when he loads up his cart or barrow is to let the thing go itself down grade. When the honey is extracted it runs from the machine downhill again into the tanks. These are usually set up on the ground about 15 or 20 inches, or just high enough to let the honey run from the honey-gate into the square 60-lb. can—the favorite package for extracted honey on the Pacific coast. These are filled one at a time, and put into a wagon that is backed right up to the tanks. It is then delivered to the nearest railroad station, or sometimes hauled all the way to market, as at times freight rates in California are almost prohibitive.

FREIGHT RATES IN CALIFORNIA.

The railroad company proposed, I think, in one case to charge a bee-keeper \$120 for hauling a carload of honey only 40 miles, and then did not deliver it at the dock. He finally hired a teamster with a truck, and hauled it to the boat-landing, for less than \$40. But the aggravating part of the whole thing was that the railroad company was mean enough to offer to deliver the *next* car for \$40, when before it had stated it could not haul it for less than \$120 and make a profit. The agents of some of the companies, I am told, are instructed to "charge all the traffic will bear," and they do. And that reminds me that one of the things the residents of California have to put up with is exorbitant freight charges. In some cases the common roads are too mountainous for wagon traffic, and the poor rancher has to pay the rate or go without marketing his product.

We drove that day something over 40 miles—46 in all, I believe. We stopped at a good many different apiaries, and took some photos; but those I have reproduced are representative lots showing the apiaries as they appear round about Los Angeles, and, I should say, pretty much all the rest of California so far as I went through it. I found Mr. Bennett to be a man who is exceptionally well posted on bee-keeping as it is carried on in that land flowing with milk and honey; and the long pleasant drive I had that day in that valley will remain as a pleasant spot in my memory.



CALIFORNIA; THE BLESSING OF THE RAIN.

The fears of a dry season have been dispelled; abundant rains have fallen in all parts of the State. In the South, where the rainfall is always less than in this northern section of the State, much relief and thankfulness are felt, for it means prosperity to the bee-keepers as well as to the fruit-growers, ranchers, and stock-men generally. Here in the Santa Rosa Valley (fifty miles north of San Francisco) the rainfall up to Feb. 3 was 18 inches, and since then we have had gentle rains almost continuously, making a total of 25 inches recorded up to Feb. 26. During the past three days nearly 6 inches have fallen, and some damage is feared from rising waters, for the rain has not yet ceased.

At Los Angeles, on the 25th the precipitation was one-fifth of an inch, with rain still falling, making six inches for the season against 12.68 inches to the corresponding date last year; but a continuance is expected. Even in those sections where the showers have been lightest and least frequent it appears that there has been a sufficient supply to insure the spring crops.

At San Bernardino they have been visited by a steady downpour. At Santa Barbara, $\frac{3}{4}$ inch fell in one day; and at San Louis Obispo, 1.09 inches fell in the last 24 hours. At Eureka, in Humboldt Co., in the extreme north, 1.42 of an inch fell in the same time, against .20 at San Diego, in the extreme south. Ensenada, in Lower California, received more rain than did San Diego.

To none will it bring more gladness of heart than to the bee-keepers; for without this rain the sages, which form so large a part of the natural pasturage of the great honey-producing sections, would not have yielded nectar. To the olive-groves, vineyards, and great fruit-orchards, the coming of the rain means bountiful crops; for at hardly any season are the showers more propitious than those that fall in February.

We have lost one good bee-keeper from this section—Mr. G. O. Miller, of Haldsburg, who has gone to Los Angeles to take his part in the hoped-for prosperity of that southern region. We wish that he and all the workers there may find abundant reward for their toil and skilled efforts in the bee-field this coming season.

DR. FREDERICK WEBLEY.

Santa Rosa, Cal., Feb. 26.

BEEES IN THE WALLS OF A HOUSE; HOW TO GET THEM OUT.

This is from a poor ignorant woman whose knowledge of bees consists of the two facts that they sting, and also make honey. She lives in an old house where bees also live, they having entered years

ago through knot-holes in the clapboards. For some time honey was taken out every year, but of late years none can be reached, and every fall there is a strong smell of over-fermentation. Now, the new owners want to know if there is any way of ridding the house of them except by burning it. The woman of ignorance imagined a new queen in a tempting hive would tempt them out where they would prove the nucleus of a fortune, or at least provide the family with honey. What particular form of endearment is used in cajoling bees? and with how long a pole is it allowable to handle them? They have always been very much attracted toward the woman, showing a desire to nestle in her hair, etc. She is firmly persuaded there is no good bee but a dead one, and expects to badger the men into the necessary formalities.

HELEN M. GRIFFEN.

Yorktown Heights, N. Y.

[When a colony or colonies of bees once get lodged in between the inner and outer walls of a dwelling it is not an easy matter to get them out without tearing off the clapboarding. I have seen several attempts made to take the bees out. Perhaps the most feasible is to put a Porter bee-escape over the entrance or knot-hole through which the bees go. This will catch all the flying bees, and all other bees as fast as they come out to fly. But the result in the end will be some dead brood, some young bees, the queen, and more or less honey. After all, the attempt at best is somewhat abortive. If the brood die, there will be a smell, and the honey may sour, or it may melt from the direct action of the sun's rays, and at some future time leak out and run down somewhere.—ED.]

TWO-STORY DANZENBAKER HIVES; CONDITIONS UNDER WHICH THE SAME MAY BE USED.

Can a larger crop of comb honey be secured by using two stories to a Danzenbaker hive? and will it curtail the desire of the colony to swarm? I should like to hear of other bee-keepers' experience with two-story Danzenbaker hives.

WM. H. EARNSHOW.

Bridgeport, Pa., March 19.

[A great deal depends on a locality as to whether two brood-chambers of a hive can be used to advantage. My impression is that, situated as you are, you could to very good advantage use two brood-chambers up to the beginning of the honey-flow. At that time, crowd all the brood into one brood-chamber, and give the remainder to some other colony or nucleus. In place of the brood-chamber removed, put on another with empty combs. After the bees begin to store in the combs, put on a comb-honey super containing sections, with full sheets of foundation, and then look out for comb honey.—ED.]

A SIMPLE TEST FOR DETECTING GLUCOSE IN HONEY.

Have you a simple test for the purity of honey? Why not tell us how to analyze honey, through GLEANINGS? I have access to a chemical laboratory.

Peru, Ind.

GEO. S. DEMUTH.

[It would not be practicable for the average person to analyze honey to determine its purity. This is the work of experts, and the very best of them at that. A simple test, however, may be applied in the case of honey suspected of containing glucose. If a little alcohol be stirred in with such mixture a slightly cloudy appearance will be noticed in the course of five or ten minutes if glucose is present. But if one is familiar with the "brassy" taste of ordinary commercial glucose he can usually, by means of his tongue, detect (at least for his own satisfaction) the glucose in honey, even if only a small amount is used.—ED.]

QUEENS FLYING OFF THE COMBS.

The queen that I received last summer came in good condition, and was successfully introduced by being allowed to run in at the entrance. On the third day I had some friends call, and they wanted to see the new queen; so I took out a frame of bees, found her, and we were inspecting her, when, without warning, she left the frames, flying over the barn, and that was the last I ever saw of her. Did you ever have such an experience?

SAM. A. FENNER.

Providence, R. I., Mar. 15.

[The circumstance which you have related is not an unusual one. A queen that has been introduced is usually a little shy; and when the hive is opened she may be frightened. She may rush about over the surface of the comb trying to hide, and this act of hers has a tendency to excite the bees, with the result that they grab for her. This will frighten her the more, when she will take wing, possibly never to return. But when a queen "lights out" in this fashion it is best to set the comb back in the hive, leave the cover off, and go away and leave the hive. There are chances she will return and go in among the combs.

I have two or three times stopped queens by knocking them down with my hand. This may stun them a little, but they will recover all right providing you can catch them in the grass before they take wing.—ED.]

NIGHT VENTILATION OF BEE-CELLARS NOT SATISFACTORY.

I have tried your plan two winters of leaving a cellar door open nights and closed days; heat about 42 to 45°; went up one or two days to 50°; have a large cellar with heater, but not in the part where bees are, and I will never try it again. They kept up a roaring all winter, and came out bad. About three bushels of bees came out on

the cellar bottom. I have wintered for 50 years in a cellar, and only once did I ever have them winter so poorly, and that was when they got honey-dew.

West Rupert, Vt. C. M. LINCOLN.

[I can not understand why you should have had results so unfavorable. Our bees would roar invariably if we did not give them sufficient ventilation. Sometimes when the days were muggy and warm outside, the bees would become quite restless till toward night; then when we swung the doors open, in the course of an hour or so they would become quiet. During this time the thermometer would remain about the same. I should be inclined to feel that the food or some other condition, rather than the opening and closing of the door at night, was responsible for the uneasiness on the part of the bees.—Ed.]

A BUNCH OF QUESTIONS.

1. Is there any danger of introducing foul brood into one's apiary by using comb foundation from any and all dealers? If so, where would you buy foundation?

2. How many days old is a drone from hatching before he is able to fertilize a queen?

3. By using Alley drone-traps can one rid a hive of drones that may be in there, providing no more be raised? How long will it take to do it?

4. When running for extracted honey, about when would you put on queen-excluding honey-boards?

5. In the early spring, just before drones begin to fly, can one secure as good queen-cells by the Doolittle method, as in swarming-time, if he feeds the colony to stimulate them? How much and how long should he feed? Will the cells produce as good queens?

6. Where can I get an electrical apparatus for imbedding foundation-wire? What will it cost?

7. I want a fine breeding-queen—one for business not color. What sort of queen would you advise me to get?

HENRY PERKINS.

Highland, San Ber. Co., Cal.

[1. Not the slightest. Foul brood has never been known to be transmitted through foundation.

2. I do not know exactly, but anywhere from ten days to two weeks.

3. The Alley trap will take care of all the drones in the hive. It may take a week or so before the drones attempt to fly; and when they do they will go into the upper chamber, where they will die of starvation.

4. Excluding honey-boards should be put on at the same time that the supers or upper stories are given.

5. Nearly if not quite as good queens can be secured by the method you outline; but the feeding must be of a stimulative kind—a very little thin syrup daily. If the weather is cool or chilly at night I should not

expect as fine queens as I would later on when the weather is more mild.

6. The A. I. Root Co. now supplies an electrical apparatus made up of six dry cells for imbedding wires into foundation, at a cost of \$3 00. This includes a complete outfit.

7. I would select my queen-breeder, and then call for just the kind of queen you call for in your question.—Ed.]

TWO-STORY HIVES FOR MICHIGAN; SPRING MANAGEMENT.

On page 822, last year, you say you would not advise the use of the double-decker for all localities. Would it not be an ideal plan in Michigan? If I take my bees out of the cellar about the middle of April, how many pounds of stores does each colony require in order to build up strongly? In case some colonies have from 25 to 30 lbs. of stores left, can I leave that, or had I better take some of it out, so as to give them more room for brood?

After the middle of April can I encourage brood-rearing too much or too soon? I desire to have them in the best possible condition for white clover.

W. Bos.

Forestgrove, Mich., Mar. 27.

[Double-decker colonies might answer very well for your part of the State. Under no circumstances would I advise you to take away any stores from a colony of bees at this time of the year, for they will need all they have. I would not stimulate brood-rearing too early in April. For your locality you had better not do any thing of the kind before the first of May, and not even then if the weather should remain cool.—Ed.]

SEALED V. POROUS COVERS IN WINTERING ; ALFALFA.

What do you think about wintering bees under enameled quilts with a good supply of packing over the top, and with a Hill device over the frames?

The farmers are beginning to sow alfalfa clover, and some people say it will not produce any honey in this State. Is it true that it has failed in some States?

A. A. STICKLEY.

Strasburg, Va., March 17.

[Enameled quilts are very often used in packing over a brood-nest, with very good results. They make what we call a sealed cover. Others argue in favor of one porous, like burlap, claiming that the moisture then has an opportunity to pass upward and away from the bees; but this is an objection in that the packing material becomes damp and cold. All things considered, we should prefer in our outdoor wintering the sealed covers.

Alfalfa does not yield honey in all States. In the East we do not know of its furnishing any honey, while in the West generally it is regarded as a very important honey-plant.—Ed.]

WINTERING AND HOUSE APIARIES.

Will you please state in GLEANINGS the best method of uniting two or three colonies to make one strong one when they are scattered about ten feet apart among 25 other hives? Also please state the advantages and disadvantages of a house-apiary for 25 colonies, and ask other subscribers to give their experience with same.

Philadelphia, Pa. JOHN P. TULL.

[If the colonies or the nuclei to be united have been outdoors all winter, and if it is desired to combine them together into one colony, utilizing the heat, the task is not an easy one. I have united nuclei in the spring; but in two or three days after bringing them together, the little colony that received fresh infusions of strength from other sources was about as weak as ever. The trouble is, the bees of the several nuclei, as soon as they fly, will be pretty sure to go back to their old locations. If there are no combs of honey to receive them they will starve even if they do not chill to death; but weak nuclei in the cellar can be united before taking them out, or afterward if it is more convenient. But the uniting must be done before the bees get to flying and marking their locations.]

Regarding house-apiaries, they should be used only when land is scarce, and thieves are prevalent in the locality. They are handy to work in all kinds of weather, and the colonies can be opened up without inducing robbing. A lot of cross bees can be handled in such a building much more comfortably than outdoors.

The main objection to the house-apiary is the expense and its lack of portability. For further particulars you are referred to the A B C of Bee Culture, where the subject is discussed very fully.—ED.]

WHAT TO DO WITH COMBS OF STORES ON WHICH BEES HAVE DIED.

What do you do with honey and comb that are left in the hive after bees have died in spring? Would you advise hiving new colonies on this old comb at swarming, or would you think it best to give them new foundation? J. H. MURDAUGH.

Croswell, Mich., March 11.

[There is no objection at all to putting a fresh lot of bees upon combs from which other bees have died, unless the combs are badly smeared with stains of dysentery.—ED.]

SPANISH NAMES.

Mr. Root:—In regard to the pronunciation of the Spanish names of shrubs or trees you give on p. 863, I will beg leave to say that, according to the rules laid down by F. M. de Rivas, who is a graduate of the University of Sevilla, Spain, and of St. Edmunds College, London, it should be respectively: *goo-ah-heel-ee-ah* and *mais-kee-tai*, and not as you give it, which I judge you did, probably, after the manner of

Americans who pronounce largely after the manner of the Mexicans, or according to local custom, which is often about as much Spanish as the Scotch brogue is English.

J. B. WIENMILLER.

Pineridge, Cal., Feb. 23.

[You are quite right. I was simply giving the local pronunciation. But I fear your spelling would be capable of still greater perversion, as you make five syllables out of *guajilla*, which is pronounced *gwah-heel-yah*. The other word has three syllables, pronounced like the English "mace-kee-tay," and not "mes-kee-ti," as you seem to make it.—ED.]

SPREADING EXTRACTING-FRAMES.

1. In extracting from the top story of a Dovetailed hive would it not be better to use only seven combs, dispensing with the Hoffman principle altogether? It is a vexatious and tedious job to extract from Hoffman frames when placed in contact with each other.

2. Is not the ten-frame hive superior to the eight-frame when used exclusively for extracting? ALPINE MCGREGOR.

Inglewood, Ont., March 12.

[1. It is the practice of some bee-keepers to space their combs further apart in the extracting-supers. Hoffman frames can be spaced anywhere from 1½ to 1¾ in. from center to center; and from the fact that they have wide end-bars, a half-inch space does not interfere in the least with the practice.]

2. The ten-frame hive is generally regarded for extracting purposes as better than the eight-frame, especially in the South.—ED.]

WHERE TO START AN ABIARY.

I wish to know where in the United States would be the best place to start an apiary.

STEEN FREEMAN.

Cedar Mills, O., March 30.

[It would be almost impossible to answer this question satisfactorily. The climate and general conditions of various localities are such that I would have to know what your capabilities and general health are. Some persons can not stand the hot or dry climate of Texas and Arizona; others can not live in a high altitude, like Denver or up on the Rockies in Colorado or Montana; and others could not bridge over two or three bad years out of five, such as one would find in Southern California; and still others would not like to pioneer it in a new country without its modern conveniences and "good society." If you follow the series of articles that I am writing, giving an account of my trip through the various bee localities of the United States, from Alabama to the far West, and back again, you will, perhaps, be able to come to some conclusion as to where you had better locate.—ED.]



Therefore take no thought saying, What shall we eat? or, What shall we drink? or, Wherewithal shall we be clothed?—MATT. 6:31.

Seven times within the last two years I have made a trip to the Traverse region of Northern Michigan when used up physically and mentally, with impaired digestion, etc.; and seven times I have returned full of strength, energy, and vigor, both mental and physical, and, I hope I may say, *spiritual* as well; and once more the question confronts me, Is it altogether the healthfulness of the locality with its vitalizing and invigorating breezes from off across the northern lakes? or does this wonderful renewal of health, strength, and *happiness*, come from different habits and different modes of life? I rather suspect it is both; and in any event I can give God the thanks for having answered once more my oft-repeated prayer, not only for health, strength, and enjoyment for *myself*, but that I may direct others who are coming to me for advice. Did God, when he created man in his own image, expect him to regain and *retain* health through drugs and medicines, or otherwise? Yes, I may say not only seven times in my experience, but when Mrs. Root went with me, although she had very little faith in my enthusiasm she was forced to admit that she found a degree of strength, health, and vigor that she never expected again in this world. Now, to be sure that I have made no mistake let me go into particulars a little. If you should think my story is a long one, please bear in mind that it has to do with the health and happiness, not only of untold thousands, but perhaps millions.

I reached Traverse City between 6 and 7 o'clock Saturday evening, March 22; and I was so anxious to get among my friends, eight miles away, up on the hills, that I started off on my wheel by moonlight, carrying my grip. When I reached the first country store, however, two or three miles out, I found I could not carry my grip up the hills to the place I was going to; but a loaded wagon that I overtook proved to belong to a neighbor of Mr. Hilbert, and the driver kindly took it on top of his load. As the snowdrifts were not all out of the way, I had a pretty tough time of it, and reached friend Hilbert's just before bedtime. My young friend Alice informed me the Sunday-school had been closed all winter, and that there had been very little preaching service; once, the drifted snow had prevented the people from getting out; and at another time, by mistake in appointment, the congregation gathered, but there was no minister; and as they have services only every other Sunday any way, the meeting-house had been standing empty, much of the time, even on God's holy day. It was their cus-

tom to start up the school the first of April. I said something like this:

"Now, look here, friends. It is a long while since I have passed a Sabbath without going to Sunday-school or church, or attending any place of religious worship. I rather think we will have a Sunday-school there to-morrow."

There were, however, all sorts of objections in the way. First, it was not announced. Second, the superintendent was away from home. Third, everybody understood it was to start in on the first Sunday in April, and it was then March. Fourth, there was no janitor. Fifth, the great sugar-camp of 1600 trees and 2400 buckets was running full blast. In fact, Mr. Hilbert himself was in the camp then, and was to boil all night, and all hands were to be off early Sunday morning to keep up the boiling so the sap could be handled that was going to waste. Sunday morning, however, I was well rested, and full of enthusiasm to have a Sunday-school. Alice was almost the only one of the family that could be spared from the sugar-making. I commenced calling at the houses, inviting them to come to Sunday-school; but it was mostly *uphill* work. Once in a while the bright smiles of the mothers and the animated faces of the children at the prospect of going to Sunday-school made the work a *little* downhill. I found the superintendent's father, and he said it was all right if I could get the children to go, and he got the key of the church for me.

At the next house I found a father and five children eating breakfast. The father was quite sure that none of the children could go. He said they were not the Sunday-school kind. The oldest girl, however, admitted that I had seen her in the Sunday-school the summer before. I knew if I gave up at the start I should lose my enthusiasm, so I stopped to talk with the father a little. I soon found out that in the old country he had worked at gardening under glass, and knew about hot-beds, cold-frames, sashes, etc. Then I pointed out to him what could be done in his locality with the piles of heating stable manure close at hand. I finally got permission to get one of the boys to go with me to make trips crosslots to houses too far away for me to reach alone. Then I went through the whole little town of Bingham, shook hands with the mothers and fathers, and talked with the children, and had a good-sized crowd in full sympathy with my undertaking before half-past ten, the usual hour for the Sunday-school. The woodshed was locked up, and I did not have the key; but I picked up splinters around the church door, thus ridding up the yard, and soon had a pretty good fire in the stove. By this time I began to feel happy; and it was a great privilege to kneel there in that little church alone and pray for the mothers and the children I had talked with, that were already on their way to Sunday-school. One of the objections to keeping Sunday-school going all winter

was that the snow was too deep, so they could not get to the church. I asked several if they ever found a snow too deep to get to the one saloon. All agreed that never a Sunday had passed without there being a well-beaten path to its front door.

After Sunday-school my heart was rejoiced again by two pieces of information. First, the saloon was to be removed; in fact, the fixtures were already sold. Second, the reason of its removal was that it *did not pay expenses*. Oh what an easy way this would be to settle that vexed question that is now stirring the whole wide world—saloon or no saloons! If the proprietors could just be made to pick up their duds and leave because of *lack of patronage*, what a deal of quarreling and hard feeling might be saved!

Well, it was arranged that, after Sunday-school, I was to get my dinner over at the sugar-camp. I told Mrs. Hilbert in the morning all the dinner I wanted was some Russet potatoes roasted in the ashes, and some milk to drink while I ate them. Of course, we had bread and butter, and maple syrup as a side issue, and a very good dinner it was. When I told friend Hilbert that, as I had spent the forenoon worshipping God, I should like to help a part of the afternoon in saving the sap from wasting, he said he did not know any thing I could do unless it was to sit on a high stool and boss the ranch. I told him I used to be ambitious when I was young, but I had gotten over it. I asked for a light tin pail and a tin dipper that they could spare as well as not. I told Alice, after she had cleared away the dinner-table, to come and help me. The greater part of the immense maple-trees had two buckets, but usually only one bucket was running over, so we dipped sap with our dippers into pails that were not quite full. At many of the small trees the pails were only half full; and we carried sap from the pails that were running over, into these. The cistern was full of sap; the store-troughs were full, and the boilers were going at such a rate that one or another of the six or eight was boiling over most of the time. The plan I was working on was about the only one to save the wasting sap. Three teams were gathering—that is, as fast as the boiling would permit them to gather. When we had stopped sap wasting, by equalizing as far as we could go, we followed after the gathering-tank and took a dipperful or two from the pails running over, and carried it to the pails that had just been emptied.

By the middle of the afternoon, as there was no sap going to waste I started off crosslots in the direction of that "cabin in the woods." I was a little tired when I reached it, for you know I was a little out of practice in climbing those great hills; but when I opened the door of our little home and found every thing in apple-pie order, just exactly as we had left it last November, I once more knelt down and thanked God for his great mercies on that

little home. Nobody had meddled with any thing. As there is no smoke or dust in that out-of-the-way place, even the cheese-cloth screens over the windows were just as clean and perfect as the day Mrs. Root put them up. Finally my eye rested on a big stout chest, where our most valuable articles of clothing, etc., were, as we supposed, most securely locked with a strong double-bolt lock. Sure enough, the broad plank that made the cover had warped during the winter, and by some unexplained means had sprung open that strong lock. The cover was opened just wide enough for a mouse to crawl under—yes, and they *did* crawl under. Mrs. Root had placed in this box for safety a bag of crackers, some granose flakes, and part of a sack of flour. The mice had got in and held a picnic there all winter. A very comfortable and stylish nest had been made inside of her Sunday hat, and the piano spread that we used on our little round dining-table had furnished some very soft and appropriate material for said nest. Luckily, however, these were the deer mice of the woods, and hence there was no smell about their work as with the common house mice. God in his infinite wisdom has seen fit to send us, all along, thorns with the roses; and while I felt sad about this mishap I could thank him all the same. It took me till dark—in fact, I had to light a lamp to finish taking every thing out of the chest and shaking and brushing it to restore things to order. Then I found I had to go a quarter of a mile to get some milk, eggs, and bread and butter, etc., for my evening meal. I was so tired when night came that I curled up under my warm woolen blanket on my rustic bed up by that little stove I told you about last fall, with a keen appreciation of a warm cosy place to rest. Yes, I *was* tired after my busy Sabbath day's work; but I was happy—yes, *very* happy.

Shortly before this trip I have been telling you about, our pastor, Rev. Jessie Hill, gave us a sermon, using the text I have at the head of this chapter. From this sermon I make the following extract:

Worry is not the most common sin among the very poor. They possess a stoicism and indifference that makes them indifferent to their condition. But worry is a *familiar* face among those who own larders and wardrobes. We account for this on the basis that as a man goes up in the scale of being, his wants become more numerous. In most cases the multiplicity of wants is the badge of civilization. A jelly-fish finds food in the seaweed which grows in the decayed tissues of its own organism. Its wants are few. But its life is among the lowest form of animal life.

But we have magnified the complexity of modern life by elaborating what God intended to be simple. Eating was intended to be the soul of simplicity. A very little food prepared in a very simple way is all that is necessary for healthy life. But now, unless we have a dozen spoons, several forks and knives, half a dozen side dishes beside each plate, we haven't had any thing to eat; and a mother testified the other day: "I might as well run a private sanitarium. We have five different sorts of health food and three kinds of cocoa in the pantry; and the cook, who is justly proud of her hot bread and her coffee, is losing all patience with us. Sure, and they are getting so that hot water'll be too strong for them." I heard her say to the housemaid yesterday. "'Tis a sick-diet kitchen this is coming to be, and no place for a girl that can make eleven kinds of cake."

And the same is true of clothing. Comparatively speaking, a very little clothing is all that is necessary. But we are not satisfied with this. We care more for custom and fashion than for our own comfort. We are slaves to fashion. Fashion is a hard taskmaster. When we want clothing, fashion says: "Wear this." We say: "It looks horrid." "Wear it," comes the demand. "But it is uncomfortable," we say. "Wear it," is the reply. "Makes me look like a fright." "Wear it," is the only answer. And we wear it. Conundrum and puzzle though it may be, we wear it until one says: "Instead of wearing our clothes out, they wear us out." It would be ridiculously funny, if it were not so pathetically sad, to see people to whom the matter of eating and clothing were the *great* questions of life.

After we got home Mrs. Root and I were discussing the matter, and I told her I was going to board myself and do my own cooking in that cabin in the woods for the following two weeks. I told her I wanted to see how few dishes I could get along with, for I shouldn't have much time, and I also wanted to see what the effect would be on my health. Therefore on Monday morning, after that busy Sabbath, I started to do my own cooking, for almost the first time in my life. First I opened a pit of Early Michigan potatoes in the sandy side-hill close by the cabin. Three fair-sized tubers were placed in the hot ashes in the front part of our drum stove—the one I told you about called the "Flirt." It takes about half an hour to roast potatoes in this way and have them right. Of course, the outsides were charred black. I told you a few weeks ago I found a little charcoal with my food is an excellent aid to digestion. In fact, we had the same kind of roast potatoes in the sugar-camp the day before. When some of the boys were going to scoop out the inside and throw away the charred crust, I told them they were wasting the very best part; and that if they would try it, chewing this hard crust up very fine, they would agree with me. I think they all did so, for friend Hilbert said he noticed every boy had a black mouth when he got through dinner.

Well, with these roasted potatoes I had scalded milk, procured by simply putting my covered tin pail on top of the stove while I got breakfast. After my potatoes were nicely roasted I raked out a bed of clean glowing coals around the open front of the stove. On this I placed a couple of eggs, having first pricked a hole right over the air-bubble, to prevent explosion. Now, I like roasted eggs better than eggs you can cook in any other way; but I did not succeed in studying out a plan to prevent explosion entirely. May be some one who has had more experience can help me. Well, I not only relished my roasted eggs and potatoes, scalded milk, and bread and butter, but I began to gain in health and strength right along. I had three or four men at work that week, besides the team, and sometimes two teams, and so I did not have very much time to get my meals or wash the dishes and put them away. And I found very few dishes were needed. I had planned to have some wooden plates (such as are made by the million in Traverse City, but I didn't get around to it); and these wooden plates were to be dumped into

the stove after each meal. For a tablecloth I used a daily paper. This was folded up and put into the stove to save time. A quart of milk lasted me for just three meals. Then I carried the pail to Mrs. Heinforth (a quarter of a mile away) for another quart. She washed the pail, or we swapped pails, so I did not have any thing to do with washing utensils that had contained milk. The water I drank came from a big snowdrift close by the cabin; and it was certainly equal to any furnished by the sanitary still. During the day it was ice-cold, and I soon learned to prefer cold water to any thing else. When I can get pure water from a snowdrift I shall always choose it in preference to any tea or coffee the world has ever furnished.

During the first week my strength gave out every two or three hours so I had to go and take a rest in the rocking-chair or take a nap. But, just as it has happened before every time, I found I could work harder and longer every succeeding day. At the end of a week I worked from morning till night, without any fatigue worth mentioning. During the first week I lived on a vegetable diet except the eggs and milk. But the second week I sent to Traverse City for some beefsteak. Here in Medina it is worth 18 cts. per lb. for the best; but in Traverse City I paid 12½; and with my cooking I pronounced it the finest I ever ate. My plan was to roast it on those maple-wood coals. By the way, my drum stove is fired with large seasoned blocks of maple wood, and I always had a nice bed of clean coals.

Well, my first piece of steak was rather tough. I knew that people generally pound steak to make it tender; but I never pounded a piece in my life, although I have lived on beefsteak for years. The only thing I could find for a pounder was a carpenter's hammer; and for a good solid block I used the big white stone you may have noticed before the door of our cabin. I reasoned that, if a *little* pounding was good, more would be better. So I made that piece of steak "mellow," and then I carried it with my knife and fork to that bed of maple coals in the front part of the stove. Not only was the steak laid on the coals, but I managed to have a glowing brand of fire right above the meat as well. As it began to cook, the edges rolled up all around the outside so as to be just about the shape and size of a common saucer. This saucer held the juices of the meat so I was able to transfer it to a plate without spilling a drop. Some butter, pepper, and salt, made it as appetizing as they get it up at the very best city restaurants where one pays from 50 to 75 cents for a beefsteak. This steak, with the roasted potatoes, made a dinner fit for anybody.*

*I got along very well with the eggs and milk, without any meat of any kind; but after I got my beefsteak my strength seemed to hold out better, clear up to the next meal, than it did before; but as my health and strength were constantly on the increase this *might* have been the result even had I purchased no meat.

When Mrs. Root and I left last fall there remained a little pail of honey. It had candied during the winter; and this candied honey, with my bread and butter, while I drank the scalded milk from my tin pail, seemed so delicious and strength-giving that I thanked God again, even though I asked his blessing on the meal before I started.

Another thing I found in that little cupboard, that gave me great satisfaction, was a can that came from the Sanitas Food Co., of Battle Creek. It was labeled "Soup Stock," and was intended to make soup, or brown gravy, without the use of any meat. I used it on my bread and butter, as I did the candied honey, and I found it not only exceedingly luscious but very nutritious and strength-giving.

Just a word about candied honey as a health food. I was greatly delighted to find I could eat this candied honey three times a day, without any of the unpleasant results that honey has produced almost all the past winter down in Ohio. Toward the bottom of the pail, however, I discovered the honey was not candied; so I took a spoon and began to eat that liquid honey in the same way. I tried this again and again. The liquid honey interfered with digestion, and produced distress, while the pure white *candied honey* I could eat with impunity. Now, here is a point for those who love honey and find it disagrees with them. The pure white candied honey is certainly different from the residue at the bottom of the pail or jar. If you melt some of it you will find it is much whiter, and freer from the rank odor that remains in the honey at the bottom. Is it not Nature's method of refining this luscious sweet?

I came home strong and well—in fact, rejoicing in my health and strength. It took me just about an hour to prepare my meals and have every thing put away—that is, an hour for each meal; and the expense, as nearly as I could figure it, was just about a dollar a week for provisions. Now, of course, many people can afford to pay a dollar a day for board, or perhaps a dollar a meal; and I have no quarrel with those who prefer that way of living. But as for me, give me the simple, inexpensive way, especially as it gives me health and strength that I have never found where I live in what the world calls "style."

I forgot to say that in some respects I greatly enjoyed living *alone*. I enjoyed going out in the evening and looking up at the stars, realizing there was no human being within a quarter of a mile of me. I rejoiced in the privilege of singing old familiar hymns out loud, feeling sure there was nobody to laugh at me and look astonished unless it was the chipmunks and squirrels.*

*One of the hymns I greatly enjoyed was what we used to call "free salvation," especially the stanza which runs:

Know, then, soul, thy full salvation;
Rise o'er pain and grief and care;
Joy to find in every station
Something still to do or bear.

I rejoiced, too, at the privilege of kneeling down and thanking God right out loud whenever I felt it. Some of the friends who read this will no doubt pronounce me cranky, and say, "Bro. Root, why couldn't you thank God in your heart, or, if you choose, while standing up, just as well as to kneel down?"

Look here, my friend. Perhaps you have never done it yourself, but you have heard of boys or young men who kneeled at the foot of their "best girl" while they kissed her hand. And this was all right too. I like to see a man who thinks enough of the woman he is going to marry, or has already married, to show his love and devotion, once in a while, by kneeling at her feet; and if she is a good woman (like one or two I know of) it will not make her proud and lofty. Well, now, if it is all right to kneel before a human being—one of God's *creatures*—and a good fashion too, what is there wrong or inconsistent or unreasonable in kneeling before the great God above, who gave you life and being, who has answered your prayers in giving you health and strength, or helped you to surmount any and all obstacles that stood in the way of your happiness? During those two weeks I spent there alone in the woods, I thanked God more times for giving me a human life to *live* than I ever did before in the same length of time. Some time ago I made the remark that if Solomon had helped his wife in her household cares he would never have said, "All is vanity." Now I want to change it a little. If Solomon with all his wisdom had gone off in the woods to live alone for two weeks, doing his own cooking, and waiting on himself, I think he might not only have thanked God without even a glimpse of the "vanity" business coming into his head, but that he might have swung his hat and shouted praises, *especially* if his "outing" had been taken in the woods of *Northern Michigan*.



HIGH-PRESSURE PEACH-GROWING.

When I first contemplated building that cabin in the woods I said to friend Hilbert, "These tall hills, so steep in many places that a horse can not climb up them, are probably of no use, and never will be, for *any thing*."

Yes, I did have some crosses to *bear*, up there in the woods; and I learned while there alone to find real joy in bearing crosses, especially where the crosses were for Christ's sake. Just think of it, friends. It is our privilege as followers of Christ Jesus to rejoice when we have persecution and trouble; and of course we should rejoice, also, when we have "happy surprises" (anybody can do that); and, finally, we can be happy all the time; and yet there are people in this world who are committing suicide, *rejecting* this most wonderful and precious gift God has given us—a *human life to live*.

He replied at once, "Oh! yes, there is, Mr. Root; they are the very best places in the world to grow peach-trees. Just plant the trees all over these steep hills and you will find the hills are the best and most profitable land on your ranch."

Since then I have learned, as you know, that the ground on those side-hills, after the trees and underbrush are removed, is splendid to grow corn or potatoes, garden crops, or any thing; and the few peach-trees I planted last year made a most wonderful growth. In fact, this spring many of them were covered with blossom-buds. Last summer I kept the ground fine and mellow with a garden-rake; in fact, I made a dust mulch around every tree; and before a weed had started I raked a circle all around the trees, six or eight feet across, and kept it raked up fine until about the first of August. After that we did not encourage the trees to grow any more. Well, they have wintered on those steep hillsides without the loss of a bud or twig.

Now, I suppose I am not very much of an authority on peach-growing; but I have been reading books and papers, and studying the subject up with most keen interest; and I think I can tell you why so many people fail with peaches.

In the first place, the ground must be kept clean and mellow around the tree, just as much as it must be around a stalk of corn or a hill of potatoes to get a good crop. How can you expect peaches when the weeds are almost as high as the tree itself, and the ground full of all sorts of trash all around its trunk? Keep your peach-orchard under cultivation just as much as you would your cornfield. Second, a peach-tree, if left alone, will make altogether too much top. In fact, most varieties of peaches will make a veritable brush-pile if left to themselves. Then the branches will be pushed away out in order to get out of said brush-pile, and the peaches will grow on the ends of the limbs, where they can get the sun and air; then if there should happen to be a good crop, the weight of the fruit tears the tree all to pieces.

Some years ago I passed a peach-orchard that had been planted and cared for by a man who was an enthusiast. About the time it was ready to give its first good crop he left it and went away off somewhere else. The trees, in response to the good start they had, were loaded with fruit; but as there was nobody to thin it out nor even to prune off the excess of top, the trees broke down under their weight of peaches until almost every tree in the orchard was ruined. I saw it after the fruit was gathered, and it looked as if a big storm or cyclone had torn every tree to pieces. Modern peach-growing consists in keeping the root in advance of the top; then cut back and thin out every spring until all the branches that are left are full of vigor and life. You know how common it is to see peach-trees with almost half of the limbs or twigs dead and dying. Scientific pruning will

correct all of this. There will never be a dead leafless twig if it is pruned properly. Then if the fruit is thinned out as it should be, there will be no "June drop;" in fact, with the right kind of "heroic" thinning not a peach will drop to the ground—that is, unless stung by insects; and we are almost a match for the insects and fungous diseases.*

In regard to this matter of pruning, let me quote from the *Michigan Farmer* of Sept. 7, 1901: "Each and every peach-tree that would produce, probably, 1500 or 2000 fruits, should be pruned and thinned until the same tree produces only 200 or 300 peaches. Such drastic pruning will not be acceptable to many. They would claim that more would be received from 2000 peaches than from 200 or 300; but when the difference in cost of picking, packing, and shipping of these two quantities of fruit is considered, the profit will be found every time on the side of the smaller shipments."

You see, the markets are all the while flooded with common average or fair peaches. In fact, most markets are liable to be glutted with them; but with this method of pruning and thinning I have spoken of, every peach on the tree would attract attention by its size and beauty. A small basketful placed in sight in front of a grocery will cause people to stop, and lift up their hands in surprise. On one of my wheelrides I passed some trees that had been managed in this way. I told the owner of the trees to ship half a dozen half-peck baskets to Medina, and I would pay the bill. He said I might object to the price when I learned what he was getting for them. I told him I did not care much what the price was. I wanted them to exhibit around among my friends to illustrate the possibilities of scientific peach-growing. My impression is that I had to pay either 40 or 50 cents for a half-peck basket, or between \$3 and \$4 a bushel. Such peaches *always* sell. There is no trouble about getting a market.

Now, I can not take the space right here to go into this matter of scientific peach-growing. In the same issue of the *Michigan Farmer* just quoted from is an exhaustive article by Roland Morrill; and if you are interested in the matter you had better write and get it. Although the article is a

* Our nearest neighbor had a very pretty little peach-orchard of perhaps two dozen trees last summer. I say she *had* an orchard, because last fall the trees were so heavily loaded with fruit away out to the ends of the long sprawling branches that the limbs broke one after another until now the greater part of the trees are ruined. One Sunday afternoon we would hear a crash every little while from the limbs breaking. Now, these trees were pruned improperly to start with. Then they were allowed to overbear out on the ends of those limbs. The result was, the limbs split off or split the tree right in two where they started off from the trunk. A properly pruned peach-tree has its fruit evenly distributed all over the tree, and none of it very far away from the trunk; yet the head of the tree is sufficiently open so that the peaches ripen and color up nicely through every part of the top. It wants sense, science, brains, and *stick-to-it-iveness* to make a peach-tree grow just as it should, and *keep doing so*.

long one, I have read it over about four times. Then I gave it to friend Hilbert, who is planting this spring 3000 peach-trees on 30 acres of land much like my own, and he said it was sound all the way through. Morrill says you want your peach-trees on a side-hill, and near a large piece of water if possible. During cold frosty nights the cold air is always running downhill. It runs down as water would, but not so fast; and moving air does not hurt the peaches nearly as much as still air. Plant your trees in a hollow, between the hills, where there is no outlet for the cold air to run away, and they will freeze up sure—not only peaches but every thing else. We had a tomato-patch on rolling ground. In one spot at the lower edge was a low place where the air could not have a free outlet, and all the tomatoes were killed by frost in that low spot, and not one where the air could run away. It is the same with peaches. A body of water tempers the air and prevents severe sudden changes. Do not be fooled by paying ten times what you should for your peach-trees to the tree-sharks that are going around. Friend Hilbert got his 3000 trees at 5 cts. each, and they are nice ones. I got mine in the same lot at the same price. For smaller lots you may have to pay 10 cents each; but if you pay much more than that you are swindled. But do not be fooled into buying poor trees because they are *cheap*. If you are new at the business, get somebody who is posted to advise you. Do not plow deep in your peach-orchard. Shallow cultivation with modern short-toothed cultivators is all that is needed.

In regard to insect enemies, permit me to quote from Mr. Morrill:

I find that men who are thorough cultivators have very little trouble with the curculio. By thorough cultivation I mean cultivating every two or three days. There is no chance for an insect to get through the different stages of growth with a cultivator on his back all the time.

In fact, this frequent shallow cultivation is a remedy for almost every thing. Do not let traveling agents fool you into killing your trees with something they have to sell to keep the borers out. I think our experiment stations all agree there is no safe remedy for the borers aside from getting down on your knees (with your spectacles on), and looking your trees over frequently. Pull away the dirt from around the roots. See that every thing is all right; then put it back again. When the trees are small you can grow some crop between them providing you keep it a yard (or, better still, four or five feet) away from the trees. Last spring I found the boys had planted the Prizewinner beans I told you about, in a row between the peach-trees. The beans had made a perfect mat, and almost smothered a nice little tree just starting to grow. I pulled away the beans by armfuls, and mulched the ground around the tree for five or six feet with green beans full of blossoms. After that, the tree took a start. But it did not get over the shock during the

whole season. It seemed to have been robbed of its nutriment by those rank, vigorous Prizewinner beans. It is better to clear off your woods ground so as to leave the leaf-mold and trash to be plowed under, rather than to burn it up, if you can. We spent about two weeks clearing up say an acre and a half on those steep hillsides; but after the ground was put in nice order, stones and roots carried off, and it had had a thorough dragging with a spring-tooth harrow, we planted 50 peach-trees and put them in nicely in less than half a day; and just now I love to go off among those peach-trees, prune them, rake over the mellow ground, and fix things just according to my notion, better than any thing else in the world. Yes, that little greenhouse where I spent so many happy hours during the winter has lost its attraction—at least a large part of it—for the time being.

By the time these pages are before you, Mrs. Root and I expect to be living in that cabin in the woods, where we shall stay for the greater part of the summer, Providence permitting. We are so far back in the woods we are not likely to have many visitors; so if you should happen to get around our way you need not hesitate about dropping in; and if you do not mind eating baked potatoes (roasted in the ashes), with lots of nice milk to drink, I do not know but we can refresh you as well as interest you in the improvements we are making in our woodland home.

COLOSSAL LADINO, OR MAMMOTH WHITE CLOVER.

This clover is now up and growing nicely in the greenhouse—see page 251, March 12. The most of the plants look exactly like white clover, or white Dutch clover, perhaps; but we are a little surprised to find there are two or three different kinds of clovers. One of them looks exactly like sweet clover; and on the other, the leaf resembles crimson clover. Instead of having one new kind of clover we may have three or four—who knows? They will soon be planted outdoors, each plant being allowed about a square yard. Then we will try to have seed to sell or give away another year.

SOWING RED CLOVER IN AUGUST IN OHIO.

Our friends will remember I spoke of the success they make in Michigan by sowing mammoth and medium clovers in August among the corn. I said I was going to give it a test here. While I write, my mammoth clover, sown last August with crimson clover, is making a fine show; in fact, there is going to be somewhat of a contest between the two plants as to which shall occupy the ground. I think we may safely say this: That on good soil, well under-drained and enriched, we can sow mammoth or medium clover in August and have it come through the winter all right. The idea is to sow it early enough to enable it to make a sufficient root growth to withstand the heaving-out by frost on our clay soil.

Typographical changes in the Bee-keeper's Review, beginning with the April issue, will add much to the beauty of that journal. The glazed, shiny paper, so difficult to read unless the light strikes it just right, has been laid aside for a soft, white paper that gives to the printing a clean, tasty, tempting look.

Hereafter, the frontispieces, in most of cases, will be printed with colored inks, instead of somber black. The one for April is in dark green, and shows a century apiary—one established 100 years ago.

The cover is a light drab, the front page being printed in two colors—a dark, rich brown and Milori blue.

One feature of this issue is that it contains *eleven pages* of helpful, encouraging, suggestive editorials.

Send ten cents for this issue, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the holder to the Review for 90 cts.

W. Z. Hutchinson, Flint, Michigan.

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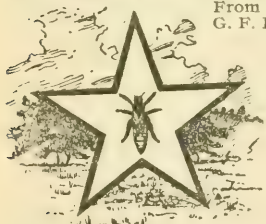
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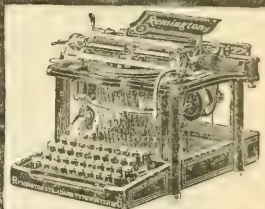
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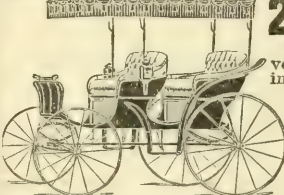
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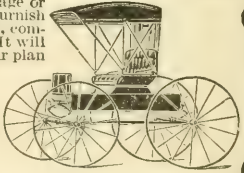
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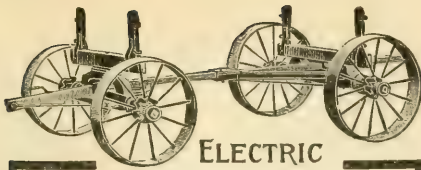
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- 65 gorgeously beautiful flower seeds,

in all 150 kinds positively furnishing bushels of charming flowers and lots and lots of choice vegetables together with our great catalogue telling all about Teosinte and Pea Oat and Bromus and Speltz, onion seed at 60c. a pound, etc., all only for 16c. in stamps. Write to-day.

JOHN A. SALZER SEED CO.,
La Crosse, Wis.



CALIFORNIA RED WOOD

Twelve ounce cold rolled copper tanks; hydro-safety lamps; climax safety heater; corrugated wafer regulator, and the best system of heating and ventilation is what makes the Sure Hatch Incubators hatch sure.

Common Sense brooders take good care of little chicks. Our free catalogue contains hundreds of actual photographs of the Sure Hatch at work and is full of honest poultry information. You ought to have it. Let us send it to you. Write at once, addressing nearest house. Sure Hatch Incubator Co., Clay Center, Neb., or Columbus, O.

COME INTO THE FOLD.



Be one of the successful poultrymen. Our people make money out of chickens. They run

The Petaluma Incubator

and Brooder too. Perfect regulation of heat, air, moisture. Hatches every fertile egg. Write for free catalogue. Address nearest office.

PETALUMA INCUBATOR CO.,

Box 125, Petaluma, Cal., or Box 125, Indianapolis, Ind.



GREIDER'S FINE CATALOGUE

of prize winning poultry for 1902, printed in colors, illustrates and describes 50 Varieties of Poultry; gives reasonable prices of eggs and stock. Many hints to poultry raisers. Send 10c in silver or stamps for this noted book. B. H. GREIDER, Florida, Pa.

Beat the Bugs

Such things as Codling Moth, Curculio, Green Apples, Sealy Bark, San Jose Scale, Blight, Etc., can only be defeated by frequent and persistent spraying. *The*

Spramotor



has proven to be the best all round spraying outfit on the market. Was awarded Gold Medal at Pan-American Exhibition, and winner of the Canadian Government Spraying Contest. We mail free, booklet "A Gold Mine on Your Farm." Ask for it. Your dealer will sell you the Spramotor, or you can get it from us direct.

SPRAMOTOR CO.,
Buffalo, N. Y.
London, Can.

BETTER THAN SPRAYING.

Don't lug barrels of water around when spraying. Use the poison direct. Our

Common Sense Dust Sprayer

and Insect Extirminator is a most ingenious device that is rapidly supplanting the old methods. It blows the finely powdered dust into every nook and crevice. Reaches the bottoms as well as the tops of leaves. Destroys insect life on plants, vines, shrubs and trees. Just as effective for vermin on poultry and pigs. More rapid than spraying. Descriptive circulars and testimonials free.

HILLIS DUST SPRAYER CO., Box 17, ST. JOSEPH, MO.

\$5 INCUBATORS FREE 50 EGG SIZE

Sell regulating. Guaranteed for 2 years. Hatches every good egg. Send for catalogue No 64. \$11 six and get one free.

INVINCIBLE HATCHER CO., - SPRINGFIELD, OHIO

Fruit Packages of All Kinds.

— ALSO —

BEE-KEEPERS' SUPPLIES. . .

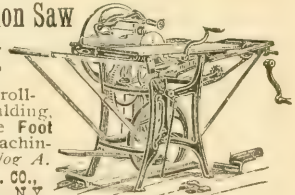
Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.

Union Combination Saw

For Ripping, Cross-cutting, Rabbeting, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge - moulding, Beading. Full line Foot and Hand Power machinery. Send for catalog A.

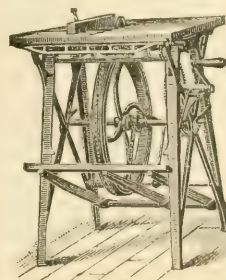
SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.



BARNES' Hand and Foot Power Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.

Machines on Trial. Send for illustrated catalog and prices. Address W. F. & Jno. Barnes Co., 545 Ruby St., Rockford, : Illinois.





LOGWOOD HONEY FROM JAMAICA.

If you want to taste some very fine extracted honey, send 10 cents for a mail sample of logwood honey from Jamaica. We have just received a two-ton lot in 60-lb. cans, which we offer at 8 cts. per lb.; by the case of 2 cans, 7½¢, or \$9.00 per case. We can furnish choice white California honey at the same price, and amber at ½ cent less. If interested, let us hear from you.

A NEW WIRE-IMBEDDING OUTFIT.

We have just gotten out a new wire-imbedding outfit that makes use of six dry cells. It is connected up with a multiple-point switch in such a way that a power of 2, 3, 4, 5, and 6 cells can be utilized according to the strength of the battery as a whole. This outfit is in every way superior to the one we have been sending out. It makes use of no liquids; there are no acids to corrode the fingers, and the whole thing is so simply arranged that any one can make it work. The price of the new outfit is \$3.00 instead of \$2.50 for the old one.

BEE SWAX.

Since our last issue we have received several very large shipments of wax, so that our bins are now full; but it will be gone by May 1, or soon after. If you have any to ship, not quite ready, don't put it off, for we will drop the price as soon as we get enough to run us through the season. The general market is active, and prices are firmer; but by the first of May the supply is usually more plentiful. We can not afford to pay more and not advance the price of foundation. As it is, we are selling so near the cost that it is almost like changing dollars just to accommodate the beekeepers.

HOLDING OUR OWN.

Between the middle of March and the middle of April we shipped 22 carloads, besides a large number of less than carload shipments. We have unfilled orders on hand for 17 carloads, and about 300 less than carload shipments. If any thing, we have gained a little on the orders since April 1, and shall be in still better shape by May 1 if we do not in the meantime receive too many new orders. Many things go out promptly. Hives of all kinds are crowding us the worst. Our stock of chaff hives, estimated to last clear through the season, is all gone already. We are having an unprecedented demand for the Danzenbaker hive, as well as for other styles. We have surplus stock ahead of orders on Hoffman, thick-top, all-wood, and shallow frames, slotted section-holders and separators. The demand for fences and plain sections is very heavy, showing that these sensible ideas are surely winning their way into popular favor. We have a large surplus of No. 2 sections, only in 2-inch and 1½, four openings, and 1½ plain, both 4¼ and 3½x5. Our No. 2 grade in other widths are taken as fast as they accumulate.

THE NEXT NATIONAL CONVENTION AT DENVER, COL.

The next national convention is to be held in Denver, Col. The following announcement, just received from President Hutchinson, will speak for itself:

"Denver has been selected as the place for holding the next meeting of the National Bee-keepers' Association—time, the first week in September. The exact date has not been decided upon, but the first session will probably be held Tuesday evening or Wednesday morning. The West has several times asked for the convention, and been put off with promises—that we must follow the G. A. R., or something of this sort, in order to secure the needed reduction of railroad rates. This year the G. A. R. meets at Washington, away to one side of the country. We met there several years ago, and only about twenty members were present—the most of those from near by. The West has been going ahead with great leaps and bounds, and can rightfully claim recognition. The Colorado State convention last fall was the equal of many meetings of the National Association. And in all probability the Colorado State Bee-keepers' Association will meet with us in joint convention. If held at Denver, the bee-keepers of Utah, California, Texas, and all of the great West will be able to get there. I firmly believe

that a convention can be held at Denver that will be the equal of any ever held.

"Of course, the first question asked will be: 'What about rates?' Well, they are all satisfactory, or, of course, we could not have gone to Denver as a convention without low rates on the railroads was never a success. The National Letter-carriers' Association holds its annual convention in Denver during the first week in September, and an open rate to everybody will be made at that time. A representative railroad man told Mr. Working, the Secretary of the Colorado State Bee-keepers' Association, that the regular fare outside of Colorado would be one fare, plus \$2.00, for the round trip, with a regular rate of one fare for a round trip in Colorado, while there have been made some specially low rates from some points in the East. From Chicago the fare will be only \$25 for the round trip. From St. Louis it is \$21. From St. Joseph, Kansas City, and Omaha, it will be only \$15. Rates from points still further east have not yet been definitely settled.

"Bee-keepers in the West will need no urging to come. To the bee-keepers of the East I will say, take the trip. It will open your eyes, not only in regard to bee-keeping, but to the wonderful possibilities of the great West. Your tickets will give you all the time you wish to see Colorado's wonderful mountain scenery—'The Switzerland of America.' Don't miss this opportunity of seeing its wonders, and mingling with its bee-keepers—the men and women with great big hearts.

W. Z. HUTCHINSON, Pres."

I am satisfied, from what I know of the bee-keepers in and about Denver, that this will be one of the most largely attended conventions of the Association ever held in its history. From all present indications bee-keepers in California will have a good season; and we hope that many of them will feel able to be present and help form a national policy to be pursued with reference to the prices of honey throughout the United States. Denver is right in the heart of the great West, and where, I predict, the great bulk of the honey of the United States will be produced in the future.

The railroad rates promised are as low as we could ever expect to get; and now is the opportunity for the bee-keepers, west of the Mississippi at least, to get together in one grand convale, and I hope that there will be several from the East.

CONVENTION NOTICE.

The Eastern part of the Northern Illinois Bee-keepers' Association will hold their spring meeting at the residence of C. J. Cummings, 2½ miles northeast of Rockford, Ill., on Tuesday, May 20, 1902. All interested in bees are invited to attend. R. KENNEDY, Sec. Rockford, Ill., Rural Route No. 5.

Special Notices by A. I. Root.

SPECIAL EXCURSION RATE TO NORTHERN MICHIGAN VIA THE PERE MARQUETTE RAILWAY.

The Pere Marquette Railway will make a special fishing rate to Northern Michigan of one fare for the round trip, between May 1 and August 31. This will bring the round-trip fare from Toledo to Traverse City (locality I have been writing about) down to \$8.25.

THAT HUBBARD SQUASH SEED.

On page 153, March 15, I asked about the Hubbard squash seed we sold last season. I am glad to be able to say that, up to date, not a single customer has reported squashes not true to name; therefore we may reasonably conclude the seed was all right.

THE AMERICAN WONDER LEMON.

Two years ago I bought of Schmidt & Bottley, of Springfield, Ohio, an American Wonder lemon, about a foot high. Last season it bore about half a dozen lemons. While I was absent the first got into the greenhouse and made it drop part of its leaves and two lemons. The other four made handsome fruits, larger than any lemon in the market, and it seemed that the lemonade they made was ahead of anything else in the world. But that may be because they grew on my own tree. This tree is now loaded with bloom, and its branches would all lie on the ground covered with fruit if I let them bear so much; and, all together, I consider it a beautiful house-plant, hardy enough to stand quite a frost without injury, and very easy to manage. My first plant cost me 25 cts. They are now offered at 15 cts. each, or five for 50 cts.

SEED POTATOES.

We are all sold out except New Russet and New Craig, and the seconds are all gone of these. We can ship promptly, on receipt of orders, firsts, for \$3.50 per barrel, as long as they last. We have about 30 or 40 bushels of the New Russets, and perhaps 60 or 70 of the Craigs. The greater part of our seed potatoes for the coming year will be grown in Northern Michigan, Providence permitting; and we expect to have some nicer potatoes for our customers than any thing we have grown here in Medina for many a year. Perhaps I might say we have odds and ends of almost all varieties, so we can still furnish potatoes by mail, or perhaps half a peck or so of a kind, by express or freight.

SHALLOTS, OR POTATO ONIONS.

For some years we have been sold out of these onions, so we have not even advertised them. Now, however, we have a nice lot of about three bushels which we can sell at the following prices: Small ones, from the size of a hulled walnut down, 15 cts. a quart; 90 cts. a peck; \$3.00 a bushel. I really do not know the difference between a yellow shallot and a yellow potato onion. They look so near alike and act so much alike I should be inclined to call them one and the same thing. (Our old Whittaker onion is also the same, only it seemed to make a bigger onion.) The small sets, when planted alone, will produce one or two large onions; but the larger ones, when planted, will break up into small sets, producing all the way from half a dozen to a dozen or even two dozen in a hill. They are very hardy, and will usually winter outdoors all right; but when kept in a dry cold place over winter they are the best keepers of any thing in the onion line; in fact, ours are as hard and firm as when they were first gathered, and there is not a sprouted one in the lot. If wanted by mail, add 10 cts. per lb. for packing and postage.

THE GRAND TRAVERSE HAND POTATO-PLANTER.

I notice the manufacturers have changed their directions for using the planter, slightly, for this year. The new directions read as follows:

"It is very important in planting potatoes that they be placed in moist soil and covered before the soil dries out. This the Acme planter does perfectly. Ordinarily the holes are made, or furrow turned if horse is used, and the soil exposed to the hot sun for the day. The soil soon dries. Next the sets are dropped, and perhaps they are left to blister in the sun; they are then covered at unequal depths.

"DIRECTIONS FOR USE.

"Carry the planter with the horizontal arm or lever across the row you are following. When putting in the seed raise the planter to the left hand. *Do not stoop.* Put the planter into the ground with the foot *stepping squarely on the hopper, not on the lever;* keep the foot on the planter while throwing the handle to the left, which releases the seed, then raising the planter you naturally step on the hill, which firms the ground.

Carry the seed in a sack, as shown in the cut. It is very important to have the right kind of sack; it should be about 20 inches wide and 14 inches deep. A common grain bag makes three good ones. The strap for carrying it should be fastened about three inches from each edge of the bag. Carry the bag high enough so that the bottom can be easily reached. *Do not make the bag too deep.*"

From what we used the machine last year I am inclined to think the above directions are rather an improvement on those we gave a year ago, especially in regard to keeping the foot on the planter while throwing the handle to the left.

Please remember the new prices: One planter, 60 cts.; 3 or more at 55 cts. each; half-dozen or more, 50 cts. each; one crate of a whole dozen, \$5.25.

FOR SALE.—2000 lbs. honey, buckwheat mixed, 7c, freight paid; in 60 lb. cans, 2 cans in case.

B. F. AVERILL, Howardsville, Va.

Victor's Strain of Italian Bees Awarded the Diploma as Being the Best Bees at the Pan-American.

BUREAU OF AWARDS.

PAN-AMERICAN EXPOSITION,
BUFFALO, NEW YORK U. S. A.
February 12, 1902.

Mr. W. O. Victor, Wharton, Texas.

Dear Sir:—I have the honor to advise you that a Diploma of Honorable Mention has been awarded to you for your exhibit of Italian bees at this Exposition.

Very respectfully, WM. I. BUCHANAN,
Director-General.

Orel L. Hershisier Bought of Me an Untested Queen. This is what He Says of Her Colony:

"They are very industrious, characteristically marked, and extremely gentle. It was a daily experience, and repeated many times daily, to go into the inclosure with interested visitors, at the Exposition, open the hive, full to overflowing with beautiful bees, the progeny of the queen you sent me, and handle them in the various manipulations of hunting out the queen; shaking the bees from the comb, as is done in extracting, showing the brood in all stages, etc., all without the use of a smoker or any thing else to quiet the bees, and I do not recollect that any one ever got a sting from any of them."

Of the bees I exhibited at the Pan-American, he says: "The nucleus you sent for exhibition and award was certainly very fine-looking bees, and, in my opinion, they deserve the award given them by the judges."

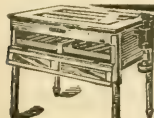
But Who is Mr. Hershisier?

See *Gleanings* of date of Feb'y 1, 1902, page 97. Send in your orders for queens, and in a short time, as Mr. Hershisier and hundreds of others are now doing, you, too, will be singing the praises of "Victor's Bees." Price lists on application.

I Am Filling Orders by Return Mail from This Superior Stock at Following Prices:

Untested queens: 1, \$1.00; 6, \$5.00. Select untested queens: 1, \$1.25; 6, \$6.00. Tested queens: 1, \$1.50; 6, \$8.00. Select tested queens: 1, \$2.00; 6, \$11.00. Breeders, \$3.00 to \$7.00. See circular for specifications.

W. O. VICTOR, Wharton, Tex.
Queen Specialist.



200-Egg Incubator for \$12.80

Perfect in construction and action. Hatches every fertile egg. Write for catalogue to-day.
GEO. H. STAHL, Quincy, Ill.

QUEENS, QUEENS

Old Standbys.—The A. I. Root Co., to whom we have sold queens for many years, wrote us last May, thus: "Are you running low on queens? We hope not, as you seem to be our standbys. Send us 24 per week instead of 12, till further orders."

Beat Any Thing He ever Saw.—The Cyprian queens you sent me last year beat any thing I ever saw rearing brood and filling their hives with honey.—J. Nielson, Huntington, Utah, Sept. 4, 1901.

Is Great.—The nucleus you sent me last fall is great—the finest queen that ever crossed the plains. Please duplicate her this time. Mr. Jordan says the nucleus you sent him cast two fine swarms.—G. R. Warren, Fruitvale, Cal., May 12, 1901.

\$50 Queens.—My nice queen that you sent me, and I put in a hive with a handful of bees on the 6th day of last June, has now nearly filled her 30-lb. super for the third time. No man's \$50.00 bill could take her. Please send me another one like her as soon as possible, and keep a dozen ready for me like her for the 20th of April next, and I will make you a nice present. —M. Brown, Station A, Little Rock, Ark.

We breed Italians, Cyprians, Holylands, Carniolans, and Albino, in separate yards, 5 to 20 miles apart. Prompt service. Safe arrival guaranteed. Fees by the pound, nucleus, full colony, or by the carload.

Prices: Tested, \$1.50 each; \$8.00 for six; \$15.00 per dozen. Untested, February, March, April, May, \$1.00 each; \$5.00 for six; \$9.00 per dozen. Fine breeders, \$5.00 each. Send for our catalog, free by mail; tells how to rear queens and how to keep bees for profit.

Agents for Dadant's Foundation and *Gleanings*. Premiums given. Don't fail to get our printed matter. It's ALL free. Bee-supplies of all kinds.

The Jennie Atchley Co., Beeville, Tex.

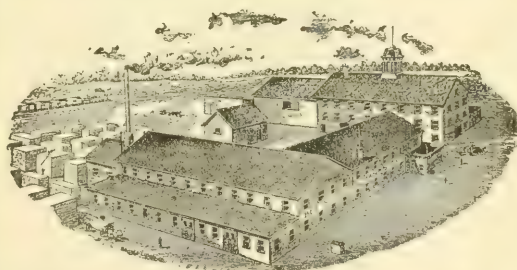
Now Ready!

Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,

Wetumpka, Elmore Co., Ala.



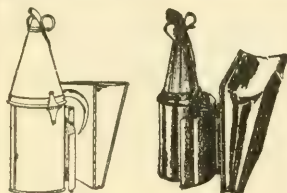
Kretschmer Mfg. Co., Box 60, Red Oak, Ia.

BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

— AGENCIES —

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Ia.
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 881 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

BUFFALO.—There is very little demand for honey. Prices do not change much and still the prices would be cut to effect sales. Fancy white comb, 14@15; A No. 1, 13@14; No. 1, 13@13½; No. 2, 12@13; No. 3, 11@12; fancy dark, 10@11; No. 2, 8@9. Extracted white, 6@6½; dark, 5@5½. Beeswax, 28@30.

W. C. TOWNSEND,

April 19. 84, 86 West Market St., Buffalo, N. Y.

BOSTON.—With the approach of warm weather the demand for honey is easing off. Stocks are not heavy and the price is fairly firm at last quotations, which were as follows: Fancy, 15@16; A No. 1, 14@15; No. 1, 13@14; honey in glass-front cases about 1c less. California light amber, extracted, 7@7½; Florida honey in barrels, 6@6½.

BLAKE, SCOTT & LEE,

April 18. 31, 33 Commercial St., Boston, Mass.

SAN FRANCISCO.—Comb honey, 10@12. Extracted, water-white, 5½@6½; light amber, 4@5½; dark, 4@5. Beeswax, 27½@30. Honey is in light demand, but as holdings are not heavy values are well sustained. There was shipped this week, to Hamburg, 1537, and to London 4900 lbs. of wax. E. H. SCHAEFFLE,
April 11. Murphys, Calif.

DENVER.—Considering the time of year we are having a good demand for strictly No. 1 white comb honey at from \$2.50@2.75 per case. We are now practically cleaned up on this grade. Off grades and honey which is partly candied is not in demand, and is offered at \$1.75@2.25 per case. Extracted No. 1 white, 7@7½. Beeswax, 24@26, and scarce.

COLORADO HONEY-PRODUCERS' ASS'N,
1440 Market St., Denver, Col.

April 20.

CINCINNATI.—Stock of comb honey is here larger than it ought to be this time of the year, and this has caused that it is offered at very low figures. Water-white is sold at 14@14½, and hard to obtain; extra fancy, 15. Extracted finds a steady sale, and amber is sold in barrel lots for 5@5½; water-white alfalfa, 6@6½; white clover, 6½@7. Beeswax, scarce, 30.

C. H. W. WEBER,

2146 Central Ave., Cincinnati, Ohio.

April 18.

CHICAGO.—The season in which comb honey sells prior to the new crop is now practically at an end; therefore prices are more or less irregular, as some sections in a case will be grained more or less, and others free. The best lots of basswood and clover sell at 14@15; other kinds of white, 10@13; ambers, 9@12, and not in heavy supply. Extracted white, dull, 5@6½, and amber, 5@6, depending upon flavor and other qualities. Beeswax scarce, and wanted at 32.

R. A. BURNETT & Co.,

199 South Water St., Chicago, Ill.

April 18.

WANTED. Comb honey in any quantity. Please advise what you have to offer. EVANS & TURNER,
Town St., Cor. 4th, Columbus, Ohio.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Extracted honey, either large or small lots; parties having same to offer, send samples, and best prices delivered, Cincinnati, O. We pay cash on delivery. THE FRED W. MUTH CO.,
Front and Walnut Sts., Cincinnati, O.

WANTED.—Comb honey in Danzenbaker sections. We can use both white and amber. THE A. I. ROOT CO., Medina, Ohio.

FOR SALE.—Fancy and No. 1 comb honey; about 2000 lbs. or more. WM. MORRIS, Las Animas, Col.

FOR SALE.—Extracted honey, from alfalfa, at 7c per pound. Send for sample. D. S. JENKINS, Las Animas, Col.

FOR SALE.—Whitest alfalfa honey, \$9.00; tinted, \$7.80, per case of two 60-lb. cans, net. ARKANSAS VALLEY APIARIES, Las Animas, Col.

FOR SALE.—Clover and sweet-clover extracted honey at 7c, in kegs and cans. DR. C. L. PARKER
Sta. A, R. F. D., Syracuse, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHHEIM,
1318-1324 Union Avenue, Kansas City, Mo.

MAIL ANY DAY.

Orders are now being booked for queens, untested and tested. Golden Italian selected tested, \$1.50. Breeders, \$2.50 to \$5.00. None better.

H. C. TRIESCH, Jr., Dyer, Ark.

"GINSENG"

Magazine Form. 16 Pages.

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PAN-AMERICAN EXPOSITION,
BUFFALO, NEW YORK, U. S. A.
February 12, 1902.

Mr. W. O. Victor, Wharton, Texas.

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Very respectfully, WM. I. BUCHANAN,
Director-General.

Orel L. Hershiser Bought of Me an Untested Queen. This is what He Says of Her Colony:

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Of the bees I exhibited at the Pan-American, he says: "The nucleus you sent for exhibition and award was certainly very fine-looking bees, and, in my opinion, they deserve the award given them by the judges."

But Who is Mr. Hershiser?

See *Gleanings* of date of Feb'y 1, 1902, page 97. Send in your orders for queens, and in a short time, as Mr. Hershiser and hundreds of others are now doing, you, too, will be singing the praises of "Victor's Bees." Price lists on application.

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WANTED.—Bee-keepers to study our advertisement and testimonial of queens in April 1st *GLEANINGS*. R. F. HOLTERMANN, Manager Bee Department, Bow Park Co., Limited, Brantford, Canada.

WANTED.—To exchange a Belgian rifle for offers. R. J. CARY, R. F. D. No. 42, Norwalk, Conn.

WANTED.—To exchange the unbound volumes of *GLEANINGS* from 1882 to 1901, for books or any thing of value. J. F. NIEMAN, Woodville, Ohio.

WANTED.—Position, by a young man of 21, to assist in apiary; have had some experience with bees and factory work; temperate habits; good reference. JOHN TITE, Robinson, Quebec, Canada.

WANTED.—Some one to move into this vicinity and take 12 or 15 colonies of bees on shares. Bees are in Dovetailed hives, and in good condition. Or will sell. Write quick to H. J. SCHROCK, Goshen, Ind.

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WANTED.—To exchange brood foundation for beeswax or offers. FRED W. BUTTERY, R. F. D. 43, Norwalk, Conn.

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[Established in 1873.]

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GLEANINGS A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. **BEE CULTURE** ILLUSTRATED SEMI-MONTHLY Published by THE A. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

VOL. XXX.

MAY 1, 1902.

No. 9



A CORRESPONDENT wants to know if I think a supersedure queen best of all queens, and, if so, why. I don't know; but I have an impression that a supersedure queen is no better than a queen of the same colony raised at swarming time. If a colony should for several years refrain from swarming, renewing its queen at proper intervals by supersedure, I should have some preference for such a queen because of its non-swarming blood. [That is orthodox for our locality.—Ed.]

E. LAGLAINE says in *Revue Eclectique* that bees occupy old combs only when they can not do otherwise, preferring to build new. It passes my comprehension to understand how the experience and observation of others can be so different from my own. Over and over again I have had the strongest proof that the bees preferred old combs to foundation or empty space, or even fresher comb, and I have yet to see the first case in which any thing else was preferred to old comb, unless the old comb was moldy or otherwise in bad condition. [So here.—Ed.]

LARCH LUMBER, says *Illustrirte Monatsblaetter*, is not suitable for hives, among other reasons because the wood is not sufficiently porous for good wintering. If that is so, it supports Doolittle's contention that hives should be unpainted. [Larch is a species of pine; and I find by the Century Dictionary that the wood is tough, buoyant, and elastic; but there is no wood in the world that quite equals the northern white pine, such as we get from Michigan and Canada. The yellow pines are pitchy, heavy, difficult to work, and do not give the satisfaction that the white does. But in Arizona and California, redwood, a species of cedar, has the preference in certain localities to even white pine, for hives. It seems to be especially adapted to a hot dry climate.—Ed.]

BLACK BEES are in better repute across the water than on this side. *Illustrirte Monatsblaetter* says the best bees are the natives, and next to them the Carniolans. [On this side the average honey-producer would just as soon have hybrids (a cross between blacks and Italians) as the pure Italians. They will certainly get as much and possibly more honey, but they are not so pleasant to handle. Black bees are very much inferior to either so far as the amount of honey is concerned. Years ago, when we had about 25 colonies of such bees in the apiary, it was very plain to be seen that the Italians would outstrip them; and this was especially so when it came to the red-clover season.—Ed.]

FOR THOSE who must find queens each spring so as to know whether the clipped queen is still there or has been superseded by a queen which must be clipped, it is well that the work be done as soon as the weather is warm enough. It is much easier to find a queen in a small colony than after it has become overflowing with bees. On the other hand, it is frequently the case that, in a very weak colony, it is almost impossible to find the queen. I don't know why. [Yes, indeed; now is the time to clip queens' wings. It is penny wise and pound foolish to put it off till the busy season, when the hives are boiling over with bees, and when it may sometimes take an hour to find a queen. One can clip ten queens now where he can clip one along about the middle of June.—Ed.]

CARL F. BUCK says, p. 329, that I "claim that alfalfa does not yield honey except on irrigated land." Not quite that, friend Buck. It was not so strong as a claim; only a question, and that with no reference to irrigation. I supposed it would yield on unirrigated land, for I think I have read of the difference in the yield on irrigated and unirrigated land close by. My question was whether it would yield east of the Rockies—a question I should not have asked, for I knew it yielded east of the Rockies in Colorado. What I suppose I had in mind—a question still in order—was this: Does alfalfa yield honey east of the Missis-

issippi? [So far I have yet to hear of alfalfa yielding honey east of the Mississippi; and it was a surprise to me that it did so in any locality not irrigated. I refer to what Carl F. Buck says of its yielding honey in Kansas.—ED.]

MR. EDITOR, you say you marked locations, so that, when you put out bees a month later, you can put them on same stands. I wish you would change location of a few, so as to see just how much harm would come of it. Some say they will get mixed if put on wrong stands, even after being in cellar all winter. It never seemed that my bees clung so tenaciously to old locations. This year I set a colony near the cellar on taking out. It flew that day, and, after standing there a week, I took it down to the apiary. The first day it flew, perhaps ten days after its first flight, it seemed to mark its locality anew, and I don't know that any bees were lost. [Perhaps you are right; but we determined to be on the safe side; but if bees after a confinement of ten days will mark their locations anew, then the fact is a matter of importance on the score of convenience if nothing else.—ED.]

A TRICK in transferring, new to me, is given in *Revue Eclectique*. Lay your empty frame on its side; drive into the side of the top-bar seven or eight small nails, leaving the heads projecting $\frac{1}{8}$ inch. Likewise drive an equal number in the side of the bottom-bar. Take very fine wire and fasten one end to the first nail above; pass to the first nail below, take a turn and pass to the second nail below, then successively to the second nail above, third nail above, third nail below, fourth below, fourth above, and so on, fastening on the last nail. Turn your frame over and lay combs in it, then put over the combs another series of wires, and there you are. [My, oh my! That would be a lot of work; and how much better would it be than a string or thread wound around the frame of combs? The string, the bees will take off of their own accord if the apiarist is too lazy to take it off after the combs are fastened; the wire—that would have to be taken off very laboriously; and those nails! how nice (?) they would be for uncapping! Give the fellow that got that up a leather medal.—ED.]

I THREW BRICKBATS at F. B. Simpson because he said we mustn't breed from freak-best queens. The *National Stockman* furnishes a brickbat that might come whizzing about my ears if he should happen to see it. It says: "Most breeders will endorse Mr. Gormley's position that speed without a speed inheritance is not likely to reproduce itself; and that for breeding purposes the inheritance without the standard speed is preferable to the speed without the inheritance." Well—yes—or—but, say, F. B., bees are not horses—that is to say, you can't control the mating, and so you never can be sure of inheritance; and so long as

you are perforce compelled to forego inheritance, it is better to breed from the best performers in the hope that at least something of their good qualities will be inherited by their royal offspring. [There is the trouble—the control of the male parentage. In our own experience, breeding from our best queens produces a superior class of daughters—no doubt about that. A principle that may be true in the breeding of horses may not hold good in breeding queens.—ED.]

THE WIND is a factor in wintering that is not sufficiently considered. Some speak as if an increase of latitude must make an increase in the severity of the winter. The isothermal lines do not by any means keep company with the parallels of latitude. The wind may cut more figure than either. Where I live, the wind thinks nothing of keeping up a lively gait 24 hours at a stretch, with the mercury not far from zero. I can easily imagine a place 500 miles further north, and a good many degrees colder, where it will be easier on outdoor bees than in this windy locality. [It is not much wonder to me that Dr. Miller has never been able to make a success of outdoor wintering in his locality. A lively gale of wind for 24 hours on a stretch, with a zero temperature, is something we do not have in Medina, for perhaps more than one day in the winter, although we may have several days of high wind when the temperature is 20 above; but these are liable to be followed by a warm spell, and it is not an unusual thing during the winter for bees to have a flight. Notwithstanding, however, we have made a great success with outdoor wintering at Medina, I am coming to the conclusion that the indoor method even here will be more economical in the consumption of stores, and give us stronger colonies for the honey-flow. I may change my mind; but that is the way the straws round about Medina blow just now.—ED.]

ONE OF THE THINGS fully settled long ago was that it is a bad thing to put bees out of cellar for a flight and then return them. Having tasted the pleasure of the free air they would not again be content to be imprisoned. Now, Mr. Editor, you've gone and unsettled the whole business again by what you say on p. 323. Please tell us minutely as to the final result. Also tell us when you took out, returned, and took out for good. There have been times when I felt I'd like to give the bees a flight, and then return them to the cellar; but I had too strong respect for traditions. [I think we have proven, to our own satisfaction at least, that the old idea that indoor-wintered bees should not be given a flight on some warm day in midwinter, is not good practice for Medina. In a normal state of health, bees are compelled to void their excreta at certain regular intervals. We know that they do retain them during the winter; and we know that, just as soon as they are set out, the first thing they do

is to spot every thing in the neighborhood. This goes to show that Nature has been pent up for a long time, and seeks relief. To give the bees a cleansing flight during winter is not only rational but humane. We managed to keep our bees quiet till about the latter part of March. Then we set them out and let them have a cleansing flight and put them back again, and then they are perfectly contented—no doubt about that. See editorials.—Ed.]



What joyful scenes around the hives
The springtime brings to sight!
Great clouds of bees sweet tribute bring
Like offerings of delight.

AMERICAN BEE JOURNAL.

Mr. York tells a good one in regard to manufactured comb honey. Rev. A. E. Taylor, of York Co., Pa., wrote to Mr. York that he had read in the Philadelphia *Record* a denial of the assertion that comb honey can be manufactured, and that \$1000 had been offered for a sample of said honey, and adds the following:

I send it, first, to say that I manufacture comb honey; and, second, to say that you had better call in your offer, if you made such, as some one may claim it. I do not claim any reward.

I manufacture comb honey because—first, I get honey in that way, whereas I would get none otherwise; and, second, I get a better product. A. E. TAYLOR.

Mr. York immediately sent for 2 lbs. of said honey, but got the following instead:

MESSRS. GEORGE W. YORK & CO.—

Yours of the 6th at hand. I do not pretend to "manufacture comb honey by machinery, without the aid of bees." That would imply that I am a creator or secreteur of wax, and I do neither; that I construct comb; that I make a chemical change in the compound of sugar and fruit, which I give them, into honey. It would be as if a ranchman raised cattle without breeding-stock. Such an effort would result as did Aaron's effort at making a god.

You would be safe in adding six units to the offer, for since the world began man hath created nothing; nor hath he entered into the secret of insect architecture; all the paper-makers together could not make one hornet's nest.

I prepare the material out of which bees give me a product which the best judges of honey pronounce superior to the natural product in both taste and keeping quality. A. E. TAYLOR.

Mr. York winds up with the following:

And so endeth another boaster. In his first letter to us he distinctly said, "I manufacture comb honey." In his reply he says: "I do not pretend to say I manufacture comb honey," etc. We wouldn't care to be compelled to sit under his preaching, and help pay for keeping him alive. He belongs in the mistaken crowd instead of the Taylor family. But, thank the Lord, there are few such as he among the preachers.

But we will not "call in" that offer of \$1000 just yet. We prefer to wait and let a few more ignorant ones bite on it. It's pretty good bait—a genuine offer. And we are not afraid of being called on to pay the money, because there is no such thing as manufactured comb honey—made without the aid of bees.

Wasn't Mr. Taylor indulging in a little "scientific pleasantries," after all? or per-

haps we might call it sarcasm toward those who think comb honey can be manufactured by man. Although the last paragraph sounds a little mysterious, no one has stated in more satisfactory language than he the impossibility of making comb honey artificially.

Adrian Getaz says, "Put a piece of wood in the fire and burn it. You say it is destroyed. No, it is not; it is only transformed. A part of it is now ashes, and another part smoke and gases." Yes, the wood is destroyed and annihilated, as that consisted of a combination of elements; and when that combination was destroyed the wood went with it. The elements, of course, were not destroyed, but simply separated.

In reply to a correspondent, Dr. Miller restates what may be a well-known truth; but as I believe many will understand it more perfectly after reading his definition I give it here, as it is too plain to be mistaken:

All the eggs of the queen are unimpregnated as they leave the ovaries. In its outward passage the egg is impregnated as it passes the seminal sac or spermatheca if the egg is destined for a worker-cell or a queen-cell. But if the egg is destined for a drone-cell it is not impregnated. In the absence of a queen, workers sometimes undertake the business of egg-laying; but their eggs, not being impregnated, produce only drones, even if laid in worker-cells.

BEE-KEEPERS' REVIEW.

In the April issue Mr. Hutchinson has the following to say in reference to the stories about artificial comb honey:

Mr. F. B. Simpson suggests that we make a mistake in not taking the public into our confidence in this matter. We simply say that the manufacture of artificial comb honey is impossible, but that is as far as we go. A great many people feel sure they know that it can be done—they have seen the artificial comb and the machine that made it (?). What they have seen is comb foundation and the machine by which it is rolled out. They have seen it at some bee-keeper's, or at some fair, and have not thoroughly understood—have simply gotten a superficial idea of it, and then when they read some of these manufactured stories about manufactured honey, they put two and two together, and that ends the matter in their opinion. Mr. Simpson thinks we should explain, in our refutations, the nature and use of comb foundation. We should tell the whole truth about the matter, and not simply deny.

I found an obstinate case of this kind at the Pan-American Exposition, especially as the "case" was a woman. She knew all about it—had seen the pictures, etc.; but after showing her just what Mr. Simpson advises, she immediately saw the truth and admitted she was wrong. Every grocer should be provided with a section with a sheet of foundation in it, and another one filled with empty comb. These would offset any newspaper fake ever printed. As long as people know that man has something to do with making comb they will feel sure he can make the whole thing till shown otherwise. "Taking people into our confidence" is, as Mr. Simpson suggests, the best way out of the trouble.



HIVING SWARMS HAVING QUEENS WITH CLIPPED WINGS.

"Good morning again, Mr. Doolittle. I have been thinking over what we talked about the other day regarding swarming with clipped queens. I did not know that I fully understood the matter, so came over again to see if you would not tell me a little more fully the particulars in the matter."

"Glad you came, Mr. Smith, for I touched but lightly on the managing of the swarms, as we were more particularly discussing whether it was best to clip or not."

"But do you really think that you can have a swarm easier where the queen is clipped than you could one having their queen flying with them, were it not for the risk of their going off to the woods?"

"I certainly do. The ease with which natural swarming is conducted, where all of the queens have their wings clipped, is one of the greatest reasons I have for clipping queens' wings. Because the queen has her wings clipped, it does not follow of necessity that the swarm must be hived on the returning plan which I outlined a little the other day."

"But is not the queen likely to get lost in this swarming process, or stepped on when you are trying to find her?"

"No, I do not think so, although some have written that way. In an experience covering over thirty years, with nearly every queen's wing clipped in my apiaries, I have yet to step on or lose the first queen, from any cause arising from her having a clipped wing. In fact, I am so well pleased with the plan of natural swarming with queens' wings clipped, after trying all other plans used in such natural swarming, that I would as soon think of going back to the old box hives as to return to the old way of letting the queens have their wings as nature made them."

"That is saying a good deal. And now suppose you tell me a little more fully about that returning plan you spoke briefly of the other day."

"I will try to do so, for there are some items which sometimes bother people that I did not touch upon. When a swarm is seen issuing, I (or Mrs. D.) step to the rear of the hive and then look on the ground to the sunny side (you can always see the best with the back to the sun, especially if you have a bee-veil on) of the same to see if there are many bees there, thereby indicating the presence of the queen; and if not, which is usually the case, step up on that side and glance over the ground in front of the hive. If the swarm has nearly done issuing, the queen is readily found by a little cluster of bees being about her. If just commencing to swarm, look at or near

the entrance where she will be seen running as soon as she comes out."

"But you said something about a wire-cloth cage the other day, did you not?"

"Yes. Have on hand a round wire-cloth cage $1\frac{1}{2}$ inches in diameter, by 6 or 8 inches long, made by rolling a piece of wire cloth around a stick and sewing the sides together with a wire raveled from the same, when a stopper is fitted into each end—one permanently, the other removable. As soon as the queen is seen, hold the open end in front of her in such a way that she will run up into it, and immediately hold the open end in front of the entrance so that the outgoing bees of the swarm will run in with her to the number of from 20 to 50. These bees help much in caring for her, and to bring the swarm where you want it. If the bees are through running out, then you can get the little cluster which gather about her in the cage with her."

"What about moving the hives?"

"As soon as you have secured the queen, lay the cage down in front of the hive, when you will move the old hive back, and put in its place the one which the swarm is to occupy, when the cage with the queen is to be laid near the entrance. Place the old hive where you wish it to stand, or move it up beside the new one at right angles, *a la* Heddon, as you prefer. Have, in a convenient place, two sheets, one of which is to be placed on each of the hives on either side nearest the one now awaiting the swarm, so that they can be spread over them should the swarm attempt to enter these hives upon returning, which they very rarely will do if only one swarm is in the air at once, and if the caged queen and the bees with her is left at the entrance of the new hive. When about two-thirds of the bees have returned and entered the new hive, pull the stopper out from the cage, which liberates the queen, when all run in together. If the queen is allowed her liberty as soon as the first bees run into the hive, the whole swarm will sometimes take wing again, and this is the reason that we wait about giving her her liberty till at least two-thirds are settled in the hive. If several swarms come out together, more sheets are needed, so that, if more than the right proportion of bees draw toward one of the new hives placed on the old stands, a sheet can be thrown over for a little until the bees are drawing about alike to all."

"When we first began you hinted at another way of managing these swarms having clipped queens beside this returning plan."

"Yes; and a very simple plan, and one preferred by many, is the following: Go to the woods and get a light tough pole, or, what is better, three or four of them of different lengths, the shortest being about 8 feet long, and the longest 20, sharpening the large end of each. If these are of bass-wood, and cut in June, when they will peel, they will be the lightest and strongest of any thing possible after being peeled and

seasoned. Now bore a $\frac{5}{8}$ or $\frac{3}{4}$ inch hole in the small end of each, when your poles are ready for one of the Manum swarm-catchers, sold by the publishers of GLEANINGS. As soon as you have the queen, and the few bees in the cage, drop this cage into the swarm-catcher; slip the pointed end of the iron rod which holds the catcher into the end of the pole which you think most convenient for you, and then hold this still open catcher up among the thickest part of the flying bees, when, in more than half the cases, they will begin to alight on it. When they are alighting so rapidly that the thing begins to get heavy, slowly carry to some tree near by, and lean the pole against one of the branches, and stick the sharpened end in the ground in such a way that it carries the clustering swarm out and away from the other limbs of the tree. The bees will soon all be clustered, when you can carry them where you please and hive them. If they begin to cluster on a limb, instead of on the swarm-catcher, wait till two or three quarts are clustered, when you will jar these into the catcher. Close the lid by drawing it over a limb, and bring it out from the limbs of the tree as before, when all will cluster on and about the cage and catcher, the same as if they had started to cluster on it before commencing on the limb. When you have them thus you can hive them at your leisure, resting assured that they will not leave their queen, no matter if you do not hive them till the next day."

"As I have a Manum swarm-catcher, I think I will try this plan in connection with the other. But I must be going."



I FULLY expected to continue the account of my travels through California in the present issue; but the engravers made a mistake and sent the wrong cuts, and I am, therefore, obliged to make a break in the series. They will commence again in our next issue, and I hope after that to continue my travels without a break until I get to the end of my long journey.

ELECTRIC RAILWAYS AND OUT-YARDS.

WE are expecting an electric railway to come by or near our premises. It already runs right through our basswood apiary, about a mile and a half north of us, and we expect to locate three or four more yards right along the line. The fact that the cars will be running every hour or so will enable us to send a man back and forth to the yards at an insignificant cost; and this will enable us to keep in close touch with the bees in several locations. As it is, our men can go down on one car to visit the

bees in the basswood orchard, and come back when they get ready.

A DISCOURAGING OUTLOOK FOR THE PRODUCER OF ALFALFA HONEY.

ELSEWHERE in this issue Mr. W. A. H. Gilstrap calls attention to the fact that some bee-keepers in California, on account of the growing tendency among the ranchmen to cut alfalfa before it comes into bloom, are obliged to migrate to other localities; that the alfalfa regions that were once splendid localities for the production of alfalfa honey are of no further use to bee-keepers. If it is indeed a fact that there is more money in cutting alfalfa before it blooms—that it makes a better hay, etc., the bee-keepers in the alfalfa regions will either have to quit business in time, or go where the alfalfa-growers are less up to the times.

BEEES NOT A NUISANCE; SO DECLARED BY JUDGE MONCK, OF HAMILTON, ONTARIO.

FOR some time an interesting case has been pending over across our border, in which the bees of a certain man were declared to be a nuisance, and damages asked in the sum of \$60.00. The case was hotly contested on both sides, but the decision of the court, as usual, exonerated the bees. The results are thus set forth in the Brantford *Expositor* of April 6:

The celebrated bee case of Brock vs. Patterson, from Lynden, has been disposed of, so far as Judge Monck, of Hamilton, and the fourth division court are concerned. His honor gave judgment yesterday, non-suiting the plaintiff.

After reciting the facts shown in the evidence, the judge went on to say that the keeping of bees—118 hives of them—by the defendant made the enjoyment of the plaintiff's property less agreeable than it would otherwise be; in fact, at times the bees were a nuisance to the plaintiff. Beyond that his honor could not find that the plaintiff had suffered any specific damage.

Concluding, the judge says: "I find the annoyance not such as to create a public nuisance. In many cases the individual must suffer annoyance for the general good; and I am in great doubt as to whether in this case the plaintiff is entitled to damages. As he has a remedy in a court of superior jurisdiction, in an action for an injunction, I direct a non-suit to be entered without costs to either party."

As that old war-horse, Thos. J. Newman, would say, "Score another victory for the bees." It is doubtful whether the plaintiff will appeal to a higher court.

Later.—A full account of the case is given in the *Canadian Bee Journal* for April.

THE TRUTH ABOUT BEE-KEEPING IN TEXAS.

MR. G. F. DAVIDSON, of Fairview, Texas, protests against statements made in two articles—one from H. H. Hyde, and the other from W. W. Somerford—in regard to Texas in our issue for April 1. Referring to Mr. Somerford's statement that Texas has a bad record back of it; that there are periods of dry years, periods of wet years, desolation and death, burning deserts strewn with dead and dying animals, no grass, venomous snakes, etc., all that, he says, is not true, and that I was correct in all I said about those bee paradises; and then

he gives numerous instances to show how home-seekers have gone there and made a good living.

With regard to what Mr. Hyde has to say about the bringing of foul brood into Texas, and that any bee-keeper who brought it there would be summarily dealt with, he wishes to say they are not going to hang the man who does it—that they will treat him right, and will expect him to do the same. He thinks there is no danger of overcrowding in the State, but condemns the practice of some bee-keepers who have located apiaries within a few hundred yards of other apiaries that have a prior right to the location.

A FEW FIGURES REGARDING SOME OF THE BEST HONEY LOCALITIES IN THE WORLD.

OUR honey-man, Mr. A. L. Boyden, has prepared a statement that I think will prove of interest. It reads: Comparisons of the honey crops of different States have been made by several writers lately, and we notice that Rambler, in March 15th GLEANINGS, estimates the California crop for 1901 at five million pounds, and concludes from the table of exports that Cuba produced as much as did California. In the *Pacific Bee Journal* for April we find the editor has given space to the Census Report, and by the heading of the article, "Only Texas Beats Us," we conclude that California acknowledges Texas ahead of them. Let us look for a little at the amount of honey produced per square mile in some of these countries according to the figures of the Census Bureau report of the exports from Cuba and Jamaica:

	Area in Square Miles.	Gross Yield. Per sq. mile.	Honey Produced Per sq. mile.
Texas.....	265,780	4,780,000 ¹	18 lbs.
California.....	158,360	5,000,000 ²	31 lbs.
Cuba.....	42,000	4,795,000 ³	114 lbs.
Jamaica.....	4,200	1,503,376 ⁴	358 lbs.

¹Census report for 1899.

²Rambler's estimate for 1901.

³Exports for 1901.

⁴Exports for 1901.

By the above table it will be noticed that Jamaica is way ahead of any of the other mentioned States per square mile, and their honey is of most excellent quality, too. We have just recently received a lot of their logwood honey, and it compares very favorably with our alfalfa, or sage, or white clover. It is fully equal in color to white clover, and has a very delicate flavor.

WHY THE GOVERNMENT STATISTICS WERE NOT TRUE AS RELATING TO CALIFORNIA.

REFERRING to the census report of bees and honey, the accuracy of which I questioned, Mr. Hutchinson, of the *Bee-keepers' Review*, says:

Mr. Root says the trouble is that statistics are not "gathered systematically in some States." As I understand the matter, the taking of a census is a systematic matter, carried on by enumerators appointed by the government, and furnished with proper blanks. I should expect that they would get as correct statistics in one State as in another. Mr. Root feels sure that California ought to rank first as a honey-produce-

ing State. He admits that Texas might come in second. It must not be forgotten that Texas is a large State—the largest in the Union—and is an excellent honey-producer.

What I had in mind more particularly was not that the government did not gather its statistics systematically, but in some States the work is done much more thoroughly than in others.

I made a trip through Texas, and through the entire length of California, and I should say that bee-keeping operations in the latter State are conducted on a far more extensive scale than in the former. It is true that Texas is a large State, and that it is coming rapidly to the front for comb honey; but in a fair year I feel sure that it can not begin to compare, even in the aggregate yield, with its sister State. Of course, I may be mistaken; but those who live in California are large consumers of honey; and yet from 200 to 300 carloads of honey may go east in spite of this large consumption; but we never hear of more than four or five carloads of Texas honey getting up north. There is this to be said in favor of Texas: Bee-keeping in that State is *more certain* than bee-keeping in California; that is to say, bees do well in Texas *every* year, while in California there are only about two years out of five that yield much honey.

The main reason why I questioned the California statistics was that they referred to a particular year. The year 1899 was selected as the one where the yields were reported for the several States. That was an off year for California—a decidedly off year, but it was a fair one for Texas, if I mistake not, as Texas generally has good seasons; so it can be readily seen how Texas might *seem* to outstrip California. But compare some of California's good years with Texas, and the latter will be found to be far behind. A set of figures, to be at all instructive or fair, should cover a period of years—not some particular year that will be good for one State and poor for another, as in the case already cited.

BEEES AS POLLINATORS IN GREENHOUSES.

THE following, written to Mr. W. F. Marks, President of the New York State Association of Bee-keepers' Societies, has been referred to me for reply:

Mr. W. F. Marks, Chapinville, N. Y., Dear Sir:—

Can you give me any information as to what extent honey-bees are used in greenhouses for the purpose of securing cross-fertilization of cucumber and tomato flowers? Where used successfully are they in large houses? Do the bees have to be fed, and do they store up honey? Can you give me the address of any greenhouse men who are now using bees for this purpose?

Thanking you for your trouble, I am

Very truly yours,
Geneva, N. Y., Mar. 29.

V. H. LOWE,
Entomologist.

I regret that I am not able to give any specific information. I can only say that I know that certain florists do make use of colonies of bees in their greenhouses to bring about cross-pollination on the flowers. So far as I know, the results have been much more satisfactory than pollination by hand.

Later.—Since the foregoing was in type the following letter has come to hand:

I have just sold two colonies of bees to go into cucumber hot-houses. I sold seven last year, and got about as much money for them as I did for the honey they made the year before. There are a good many colonies used up in this city and the adjoining town of Winchester in this way, and in Arlington. Mr. Rawson, of the latter place, last year had five acres of cucumbers under glass.

JOHN P. COBURN.

Woburn, Mass., Mar. 15.

The Mr. Rawson spoken of is W. W. Rawson, of Arlington, Mass., and is thus referred to in the *American Agriculturist* of Feb. 15:

How many stands of bees do you keep in a house 300 by 40 feet when cucumbers are fruiting? "Usually four stands are required for a single house, and they are put in just before the blossoms begin to open, so that they are ready for work as soon as the flowers are ready to receive them. Early in April the old stands are taken out and new ones put in. We contract for our bees at \$5 per stand and use about 50 stands each season. We usually lose about one-half the swarms, even after the most careful attention is given them. Many of them get out of the house through the ventilators, and are unable to return. Many others lose their lives in the house and various places; but we find it absolutely necessary to keep the house well stocked to insure fertilization and thus good fruit."

This will be a partial answer to Prof. Lowe. If any one else is in position to give us information along these lines we should be glad to hear from him.

GETTING THE EARS OF NEWSPAPER REPORTERS.

I HAVE been furnishing various newspaper reporters and magazine writers with information and photos relating to bee-keeping. I have not asked or expected that they would mention the name of The A. I. Root Co., but have requested all of them to mention incidentally something about the comb-honey lies, and to say that there is no truth in them. Several articles have already been published. The Los Angeles *Times* of April 13 prints two of my photos that I took while in California, showing M. H. Mendleson, his comb honey, and his beautiful apiary in Rattlesnake Canyon. The article is beautifully written, and, so far as I can discover, it tells plain straight facts about bees in Southern California; nor does it fail to say something about the comb-honey lies, which it nails most satisfactorily.

Another article is published in several of the dailies in this portion of the country, giving many interesting facts concerning bee-keeping, and tells how millions of pounds of honey are produced annually. It gives pictures of the hives of the olden days; of bees in a bee-cellar; of two modern apiaries; and last, but not least, a fine portrait of Rev. L. L. Langstroth, "the father of bee-keeping in America, who died a poor man."

I am personally acquainted with the writer of this article. In fact, I spent a large part of one day in telling some of the facts connected with our industry, and well has he told the story.

These articles, illustrated as they are, will be read by thousands of people; and I

am now in hopes that the "boiler-plate" makers will make extracts and scatter the truth broadcast over the United States.

There is nothing the general public need to know so much just now as that honey—real honest honey, both comb and extracted—is produced by bee-keepers to the extent of many millions of pounds. These stories about artificial comb honey, and the fact that carloads of honey are offered for sale, produce a feeling of distrust; and the truth intelligently told, that honey is produced on such an immense scale reassures the public. Our bee-keeping friends should get the ears of reporters whenever they can. Invite them to come and see you "handle bees like flies" and take off honey, and do not forget to sweeten them up with several nice sections of honey.

BEARING DOWN THE MARKET; INFLATION LIES FROM CALIFORNIA.

IN several of the daily papers I have seen references to the effect that "bee-men say that the California honey crop this year will be the largest that was ever gathered;" and there is a whole lot more of rosy statements to the same effect. While I believe it is conceded that there has been a fair amount of rain, and that the prospects are good for a fair crop, I do not believe that any sensible bee-keeper on the coast, if he stops and thinks a minute, is willing to be quoted as broadly saying that "the California honey crop this year will be the largest that was ever gathered." And yet in fact that is just what the papers do say.

I have been through California, and have studied the conditions somewhat; and from the amount of rain that has so far been reported I believe I am correct in forecasting that the next year *will not* be "the largest year ever known for honey." All plant life has had a setback in Southern California. The rains came too late in many localities to make the year a big one; for it takes Nature a little time to recover herself from a long-continued drouth. These statements of "unprecedented seasons," "veritable floods of honey in California," "biggest year on record for honey," and a whole lot more of the same ilk, are all being scattered broadcast through the daily press so they are circulated widely here in the East.

Just stop and think, brother bee-keepers of California, what all this means, and how it will be knocking off the profits of your labor. I believe the truth should be published; but for the sake of our own interests, don't tell *more* than the truth, thus destroying the chance of getting fair prices.

Early last season a lot of rosy statements were sent out broadcast, telling what a big year California was *going* to have. It *was* a fair year, but not a "big" one. But the effect of the inflation talk was a big slump in prices, for no one dared to make an offer. Such statements as these have a tendency to depress the honey market all over the United States, and as such they are most mischievous in their effect.

The bee-keepers of California should in some way get the ears or attention of every producer on the coast, and plaster up their mouths, if they do not know enough to keep still till we *know* what we are talking about. In the mean time, let every one "keep still and saw wood."

POST CHECK MONEY.

It is not often in these columns, especially in this department, that I refer to something entirely separate and distinct from the subject of bee-keeping; but here is something that is not only of great interest to bee-keepers but to every citizen of the United States, and I desire to interest the readers of GLEANINGS. I refer to the Post check-money bill which is now before Congress for consideration. In a word, it is to supplant or take the place of all the present paper currency, much of which is filled with germs of disease and filth, and substitute in its stead clean new bills that will be a great deal like our present money, with the exception that they are convertible into ordinary checks payable to certain specified individuals. There are blanks for your own signature, and for the one to whom the money is sent. Until these are filled out the bills will pass as common currency, like our present paper money. Now, then, when one wishes to send money through the mails, all he has to do is to take a bill out of his pocket-book, fill in the name of the receiver, attach his signature in the blank spaces provided, put on a postage stamp, and cancel it with the initials of the sender. This renders it payable to *only one person*—the one to whom it is sent, and no one can cash it but that person.

This new plan will be cheaper than postal orders and express money orders, and it is estimated that it will bring in a larger revenue to the general government than the present system. The fact that every bill will, in a very short time, find its way into the mails, will insure early cancellation and renewal. The result of all this will be clean crisp bills that are not defiled with all kinds of germs.

When you remember that money passes through the hands of all kinds of filthy persons, and those who are fairly reeking with disease germs, we wonder that the present system does not spread disease more than it does. By the new Post check money, all this will be avoided. It will then be possible for any one to pull a bill out of his pocket, convert it into a check, and send it anywhere in the country. He will remove very largely the temptation to rob United States mails, for no negotiable money will then be sent.

Now, then, if our readers desire to help foster this enterprise, let them write at once to their Senators and Representatives in Congress, urging their support, for the express companies will put in a powerful lobby to kill the bill, and it is, therefore,

necessary for thousands of people to counteract this influence at once.

RECIPES FOR MAKING HONEY CHEAPER THAN THE GENUINE.

THE advertisement below we find in the *Ventura Independent*. It seems a little strange that a man in Ohio should send away off to California to advertise his wares. Perhaps he thinks they do not have enough honey there to go round.

ARTIFICIAL HONEY.

Can't be told from the genuine. Costs about one-tenth as much, and gives you a big profit. Complete instructions for 25c, coin or stamps.

JAMES L. HENNING, Box 87, Bantam, O.

Below is the wonderful recipe for making honey that costs only a tenth as much as the genuine. It was written with a pen, and the writer does not even sign his name to it.

RECIPE FOR MAKING ARTIFICIAL HONEY.

Take 10 lbs. of brown sugar; add 3 lbs. of water, 40 grains cream tartar, and 3 lbs. of honey; 10 drops essence of peppermint. First dissolve the sugar in the water and take off the scum arising therefrom, then dissolve the cream tartar in a little warm water which you will add with a little stirring. Then add the honey. Heat to a boiling-point and skim it, then stir a few minutes.

The above is a fair sample of the artificial-honey recipes. By the way, why did not the editor of the *Ventura Independent* tell this man he could not accept such an advertisement? or doesn't he care what his advertisers say so long as he gets the trifling sum they pay for the insertion of their advertisement? I am ashamed of our State of Ohio. No wonder this town is called "Bantam" where this man lives. In his letter accompanying he asks for our advertising rates. He will not need them, however, for he will discover we have inserted his advertisement free of charge as above. We find Bantam is a little town of only 100 or 200 inhabitants.

Here is another recipe. It comes from the Home Remedy Co., St. Louis, Mo. They have a little book giving recipes for doing almost every thing, and declare they will return the money promptly if the customer is not satisfied. This is what the advertisement says:

Artificial honey is made all over the world, and sold as genuine bee honey, and no one can tell the difference. Our recipe was used by the greatest honey company in the world for several years, no one ever suspecting that it was not pure bee honey, and was only discovered by one of the chemists in their laboratory exposing them.

You can make this honey at a price about the same as the price of molasses. Try this and you will never be without good, pure honey.

Recipe with full directions, 25c.

And here is the wonderful recipe:

Brown sugar, 10 lbs. Water, 1 quart. Old bee-bread honey in comb, 2 pounds. Cream of tartar, $\frac{1}{2}$ ounce. Gum Arabic, 1 ounce. Oil of peppermint, 3 drops. Oil of rose, 2 drops. Mix and boil two or three minutes, then add one quart of water in which one egg has been beaten. As soon as it begins to boil, skim well; remove from the fire; and, when a little cool, add two pounds of pure bee honey, then strain. This will keep any length of time if sealed up when freshly made.

HOME REMEDY CO.

You will notice the foundation of these artificial-honey recipes is brown sugar; and

their recipe does make a sort of syrup; but the idea that no one can tell the difference between this and genuine honey is pure humbug. It must have been a wonderful chemist indeed who was unable (in his *laboratory*) to decide the stuff was *manufactured* instead of being pure bees' honey. Now, do not any of you waste money in buying recipes. Just send the advertisement to us and we will send the 25 cents, and then you can all have it free. See?

A. I. R.

WINTERING OUTDOORS AT MEDINA.

As I reported in our last issue, the bees at both our cellars came out in good condition; but those under the machine-shop, that had fresh air all night during the entire winter except during the coldest weather, were in much better condition than those in the outdoor cellar that did not have such supplies of fresh air. The out-cellar was built on the plan recommended by Mr. Bingham—a square cistern, as it were, clear under ground; but unfortunately it did not have the large ventilator recommended by him.

There was in this cellar some dysentery, and a good many dead bees on the cellar bottom—about the usual number. There was no dysentery in the home cellar except in one corner that did not get the usual circulation of air. The strange thing about it was there were three colonies in this corner, and every one of them had dysentery, while those bees that were right in line with the opening at the north end and the one at the south end, and which could get a strong current of air, were free from disease, and perfectly healthy. Our home cellar smelled as sweet as almost any living-room, and was just about as dry. Two or three times during the winter, however, Mr. Wardell sprinkled water at the entrances, and he says the bees came out and drank. In Mr. Doolittle's cellar the moisture given off by the bees condensed, and this the bees used over again. In a dry cellar such as we have in Medina it would seem that, if the bees need moisture (and I believe they do), fresh water right from the well would certainly be more wholesome than the condensed breath of the bees.

EARLY OR LATE SETTING OUT.

I mentioned in our last issue that we set out all the bees from both cellars along from the 20th to the last of March, and gave them one or two days of flight. The location of each hive was marked so that, when the bees were set out again, each colony would go back to its own stand. This may not have been a necessary precaution, but we felt that it was wise to err on the safe side. All the bees were kept in the cellar till along the first week in April. About 100 colonies or nuclei were set out of the home cellar, and left out. The rest were confined till about the 20th of April, when they were put out. But in this case Mr. Wardell thinks the first lot of bees are in

better condition than the second lot. The former have brood in all stages, while the latter have nothing but eggs, and it looks now as if the first bees had about two weeks' start over the others in brood. This seems to contradict my footnote on page 186 of this year, wherein I said I believed it was the best policy to keep the bees in until the first of May. A year ago, about this time, we set out some bees early, and some not till May. We thought the last lot of bees had the advantage over the others, because there was a storm on the 20th of April, and the snow lasted for several days, with a good deal of cold weather.

It is hard to tell just when to set bees out; but obviously it would have been better this year if *all* the bees had been set out about the first of April. Last year, the latter part of the month would not have been too late.

We have determined that we will do this: Next year we will set the bees out the first of April if the weather is suitable; and if it should turn cold we will put them back in the cellar and keep them there till it moderates again. And that reminds me that all our bees which we set out early, and put back, started brood-rearing; where it had progressed to a point beyond the egg stage it continued on, was capped over, and hatched out a fine lot of bees. So here is one more point in favor of giving the bees a week's flight in the latter part of February or early in March; for in our locality we are liable to have during these months a whole week of nice weather. This would give the bees quite a start in brood-rearing; then if the weather turns cold put them back, and the brood will be taken care of, and mature and hatch into bees.

As a rule there will be very little brood in a good bee-cellar. When the conditions of temperature and atmosphere are right, the bees should go into a quiet sleep and stay there.

I have already spoken, in answer to Dr. Miller, in *Straws*, this issue, of the advantages of giving the bees an early cleansing flight, and setting them back again. This of itself is a very important matter. While it entails some little labor, yet it does not mean more than the loss of two or three hours' time for 100 colonies.

THE RESULTS OF OUTDOOR WINTERING.

Our outdoor colonies did well; but they were the strongest and best we had in the whole yard last fall; and the loss out of the whole 300 that were outdoors was only two colonies; but the results were more remarkable with the bees under the machine-shop, because the greater part of them were nuclei. Some of them were very weak, and it was so late that we did not know whether all had even virgin queens or any queens at all. Our queen-rearing operations were conducted clear up till November. We did not, as usual, unite or double up, but kept the nuclei just as they had been used, and put them into the cellar just as they were.

The result was the loss of about three colonies. This loss was due to the fact that the bees were queenless, and not to any other cause that we could determine.

Some little time ago I attempted to take a flash-light of our bee-cellar under the machine-shop, but did not succeed in getting a good picture; but as it will give one a good idea of our cellar I show part of one end of it on page 382. The hives in the foreground are double-walled. When we found the bees were doing so nicely we put in some chaff hives. These, of course, were the first to go out in the spring. Those that show on either side are single-walled hives piled on top of each other. Each hive has its own bottom-board. Sometimes the body is pried up off from the bottom-board; but in the case of nuclei only the entrance is allowed.

The electric-lamp globe of which I have spoken is shown in the foreground. With this I can suddenly throw in a flood of light, yet it rarely caused any disturbance.



THE ONTARIO CO., N. Y., BEE-KEEPERS' ASSOCIATION.

Government Apiarian Work; Dr. C. C. Miller Criticised.

BY FRANK BENTON.

If Dr. C. C. Miller had read the report of the Ontario Co., N. Y., Bee-keepers' Association more carefully, as it is published on page 148 of the *Amer. Bee Journal* for March 6, 1902, he would likely not have misquoted as he did in *Stray Straws* in *GLEANINGS* for April 1, 1902, page 275. Dr. Miller says: "Ontario Co., N. Y., bee-keepers' convention thought what money our government expends in importing queen-bees from other lands might better be made use of otherwise." This he credits to the *Amer. Bee Journal*. But I find in the latter, the report, as given by the Secretary of the Ontario Co. society, Mr. F. Greiner, reads: "It was believed that we had just as good bees in America now as anywhere on the globe, and what money our government expends in importing queen-bees from other lands might better be made use of in the line proposed" (controlling mating). Then Mr. Greiner adds: "The Association did not take action on this proposition." From this it is plain, 1. That the Secretary, Mr. Greiner, was not reporting verbatim the proceedings of the Association, but was merely paraphrasing them in his own words; 2. That some member or members of the said society expressed the belief that "we had just as good bees in America," etc.; and, 3. That the Ontario Co., N. Y.,

Bee-keepers' Association did *not* see fit to adopt the view of some individual member or members as indicated above. Furthermore, it may be seen that a second attempt was made to get the society to indorse these views, for the Secretary says, further on: "The matter was brought up again by another member." But this, likewise, failed.

Notwithstanding all this, "the good Doctor" makes it appear in *GLEANINGS* as though the Ontario Co., N. Y., Bee-keepers' Association had whipped right around to his way of thinking. This is by no means the first time I have had to call attention to inaccuracies on the part of Dr. Miller. Want of time, and a disinclination to criticise in print, have often kept me from pointing out numerous other erroneous or loose statements recorded by him. Suffice it to say, that I believe when one is so inaccurate in his quotations, or seizes upon so flimsy an excuse to support his personal views, he is open to, and justly deserves, the severest criticism which due courtesy will permit.

In closing, I would also like to ask — not Dr. Miller — but the rest of the esteemed readers of *GLEANINGS*, if, in their opinion, it is the best taste on the part of the doctor to be so ready, as he seems, to throw cold water on any work in the bee-line that the government might sanction, or for him to rush forward with a bushel or two of propositions as to what he might think best should be done, when *he has not contributed a single effort toward securing national recognition in the form of appropriations for the benefit of the industry?* and when, almost single-handed, after many years of persistent effort, some little vantage-ground has been gained — vantage-ground that might have been reached years ago but for just such holding back, just such quibbling, or just such halting support — when something, at least, has been attained, I say, would it not be full more modest for the doctor (and I might add, also, for some others who are "in the same boat") to wait just a bit and see if what *he* and *they* want, as well as what "the other fellow" longs for, may not come to pass? Does he not fear to lose the half-loaf when he lets go to grab for the whole one? I state what I know to be a fact, that united and strong action ten years ago, in the line I then suggested to the officers of the North American Bee-keepers' Association at the Albany convention, would have placed these matters quite as far along as they now stand. But it would seem that one of the officers at that time, who might have taken hold and aided in pushing the work, has only recently awakened up to the fact, or at least made known, that he realizes the need of governmental aid (see the *Review* for February, 1902, p. 53), and he is now at the head of the National Association!

In the whole world there is not another county bee-keepers' society as widely and favorably known as the Ontario Co., N. Y., Bee-keepers' Association; and it is hardly

to be conceived that it would so suddenly conclude that its past persistent efforts in any given line of progress were all wrong, and that, vacillating at the behest of some member or two or three members, it would at once jump over to Dr. Miller's apparent view, that the best way to secure action in a forward line is to begin by quibbling as to just how the first step is to be taken! No; they are men of action, whose words are but to chronicle results. And what an example their unity should be for not only the National Bee-keepers' Association, but also every other one on this continent!

Washington, D. C.

[From what I know of Dr. Miller I am sure he did not *intend* to throw cold water on any work in the bee line that the government might sanction. Indeed, I know he has been much pleased with some things that have already been done through its apicultural investigator, Fränk Benton. I refer to the quietus he has given to some of the newspaper lies about comb honey. No man will do more to encourage government work than Dr. Miller, and if he has said something that looks like discouragement I know he will be glad to offer due apologies and to make amends so far as lies in his power.—Ed.]

HOME-MADE HIVES.

Experience with a Buzz-saw.

BY D. B. THOMAS.

I have been a bee-keeper for about fifteen years, with variable success, according as I cared for or neglected my bees. But I had one serious drawback, namely, I had to be my own pioneer, as no one who knew any thing about bees lived near to help me over difficult places; and the result is I have learned to *not* do many things as well as to do some others. It has taken a good deal of education in hive-making and buying to satisfy me, and I am still at it. A long time ago I bought two Dovetailed hives for comb honey, which pleased me so well that I bought forty next time, and for a while I bought and sold a good many. But a succession of off years knocked the bottom out of the honey business, and my bees died for want of proper attention. After a business once gets a good hold on a person, it seems, like a bad habit, to be next to impossible to shake it off; so three years ago found me relapsing into the bee fever, and I have been getting worse ever since. We have had extremely dry weather in this locality for two years, and, as a consequence, when a man has outwitted an elusive dollar he is slow to part company with it. For this reason I made my hives last year by hand, which, for ten hives, spring count, which were increased to twenty during the season, did not, of course, require a great deal of labor. They were run entirely for extracted honey; and although the season

was much the dryest we ever had, they netted me \$70, or \$7.00 apiece.

This spring a new condition confronted me. I must either make or buy about 40 hives for myself, besides supplying my neighbors. That would take about 80 dollars. I could not see my way clear to spend so much money at once, so I bought goods as follows:

1 combined saw, cost at home,	\$38.00.
1 lot of supplies, such as frames, fences, and sections, not easily manufactured at home.	- 30.00.
\$15 worth of lumber at \$3 per 100	15.00.

Total \$83.00.

By working like a Trojan I have the prospect of 50 hives in the future.

Candidly I no longer envy the supply manufacturer his hard-earned cash; and in order to carry my conviction still further I would sell my outfit at cost, for a buzz-saw is a veritable terror; and if I ever get rich on what I save I am afraid it will be at the cost of precious fingers.

Odin, Mo., April 1.

[As a general rule it does not pay any one to make his own hives; but there are localities remote from a dealer or manufacturer, and where lumber is reasonably cheap, where one can to advantage do his own work, providing, of course, he is a fair mechanic. Nearly every one who attempts to run a small circular saw finds out, sooner or later, that it will cut fingers about as easily as it does boards.—Ed.]

THE WINTERING PROBLEM.

The Truth of Some Old Teachings Questioned; How Much Ventilation do Bees Require? Moisture; Weather to Set Bees Out in the Spring.

BY DR. C. C. MILLER.

The wintering problem, which the Germans call the masterpiece (*Meisterstueck*) of bee-keeping, seems likely to remain of perennial interest to bee-keepers north of Mason and Dixon's line. I am watching with interest the outcome of the wintering at Medina in the cellar under the machine-shop and the other cellar. While we may not all have just the same advantages, the light thrown upon the problem by those two cellars may still be of general profit.

The present discussions in GLEANINGS as to winter ventilation remind one of the days of old, when a government document advocated burying bees, with no provision for ventilation, and when there were those who talked about blowing a candle through a two-inch plank, and about having colonies hermetically sealed.

I suppose no one will insist that impure air is a benefit to bees, although it comes pretty near it when it has been asserted that the least particle of outside air admitted during the latter part of winter will make the bees uneasy by reminding them

of the approach of spring. At any rate, it is held, and no doubt rightly, that fresh air may be admitted in such a way as to do harm.

Mr. Doolittle, on p. 187, refers to the sub-earth ventilator. I think I was one of the last to hold on to this. I became skeptical as to the quality of the air admitted through porous tiles, such as I had; and as it was the lazier way, to allow the pipes to become filled up, the combination of laziness and skepticism drove the sub-ventilator out of use. I am just a little afraid it would have been better if I had continued it. With continuous piping perfectly air-tight, preventing the possibility of the entrance of injurious gases from underground, I am strongly of the opinion that sub-ventilation is a good thing.

One trouble in deciding as to any one point in wintering is that the whole problem is a complicated one, and you can not separate that one point from the others. Mr. Doolittle winters as well since ventilation is given up; but does that prove that ventilation is of no value? May not a change of other factors account for success, not on account of, but in spite of, the lack of ventilation? and might not the success be still greater with ventilation? Because there has been good wintering in spite of the fact that at one time the air in his cellar would not support the combustion of a lamp, it would hardly do to argue that his bees would winter equally well if confined the entire winter in an atmosphere of such quality.

Mr. Doolittle speaks of his ventilation that would change all the air of a cellar in less than five minutes. A blast of air through a 6x8 aperture sufficiently strong to clear the cellar in less than five minutes might be rather too windy a situation for best wintering. If bees should winter well with a quiet and constant change of air, it does not follow that somewhere between that and a cyclone the danger-point might not be reached.

The idea that, when the admission of fresh air quiets noisy bees, it is because of the admission of moisture, has, I think, the merit of novelty; at least I do not remember having seen it advanced before. Some circumstances connected with the matter incline me to accept it, if I accept it at all, somewhat warily. I have been sitting, trying to recall some of the times when I have opened the cellar on nights when the bees were noisy. Sometimes the outdoor air was warmer than that in the cellar, sometimes it was colder — the result of opening doors and windows was always the same, quietness the next morning. Usually the air in the cellar felt more damp than outdoors, and, to my regret, there was sometimes a good deal more dampness in the hives than I believed best. Certainly not always, if ever, did the admission of outside air bring in moisture, yet it always brought quiet.

I never tried giving the bees water in the cellar for the express purpose of quieting

them; but I have tried it without any such purpose, and I never succeeded in getting any water taken. I don't know why, for I know others have succeeded. Just now the cellar is in an unusually dry condition, possibly because of the unusually dry condition of the soil after the terrible drouth of last summer. It is possible the bees may take water now. If you will excuse me a few minutes I'll go down cellar and see.

Yes. I took a rag dripping wet and put it in a cluster of bees at the entrance, and, while a number of bees ran aimlessly over the rag as bees do when disturbed, I could distinctly see three or four bees standing with their tongues protruded as if licking up the moisture. As this is the first time I ever saw any thing of the kind, it is probable that the cellar is drier than when I tried it before. But if unusually dry, that dryness does not seem to make the bees uneasy, for at this date, March 6th, they are very quiet.

The time of greatest uneasiness in the cellar comes late in winter or early in spring, when the outside air is as warm as the air in the cellar. No matter if the walls of the cellar be dripping wet, and drops of water be easily seen in the hives at the back end of the deep bottom-board, the bees are uneasy when the cellar is closed, and it seems to me the plain explanation is that, when the outer air is no colder than that in the cellar, it will not force its way in, and the foul air makes the bees uneasy.

I do not undervalue the importance of a correct and equable temperature; but along with it I believe a pure atmosphere is of great importance. In the pure atmosphere of the outdoor air, bees can endure great changes of temperature and a severe degree of cold; and they *do* endure it, as thousands of bee-keepers can testify.

My experience does not confirm the position Mr. Holtermann takes as to setting bees out early, p. 186. He seems to reason well that bees ought to do better for an early flight, and I have given way to that reasoning a number of times; but whenever I have taken bees out before the blooming of soft maples I have regretted it. Neither is it wise to take them out when soft maples bloom in years when weather is unfavorable. Repeatedly I have regretted taking bees out too early: I do not remember ever to have regretted taking them out too late. Notwithstanding the number of times I have taken them out too early, and the number of times I have regretted it, I again took them out early last year — March 18, eighteen days before the blooming of soft maples — and again I regretted it. It is *possible* that I will experiment no more in that direction.

Neither do I believe it wise to set out a few colonies at a time. If convenient — perhaps I ought to say if possible — I always set all of mine out the same day, and I have never seen any harm come of it. If I should take the plan proposed, and out of every 100

take out 7 or 8 each day, taking them out on favorable days, the 13 favorable days required for the purpose would make the last of them stay in the cellar, I am afraid, later than would be for their welfare. I am wondering whether friend Holtermann has different weather from mine, or whether, commencing March 15, he takes four to six weeks to get his bees out.

Toward the last of p. 186 it seems to me there is a flight into the realm of fancy. A considerable distance in that realm seems the idea that, shut up in a cellar, bees will smell pollen and nectar half a mile or even a sixteenth of a mile away. Still, I can not prove he is wrong, and Mr. Holtermann has as good a right to guess as I. He says:

"Activity means exhaustion of vitality; and when vitality is exhausted, instinct causes the bees to rear brood to replace the exhausted vitality." It has long been taught that breeding causes exhausted vitality; but that exhausted vitality causes breeding is new doctrine. If bees in May "rear brood to replace exhausted vitality," then when that vitality is replaced by young bees ought there not to be a let-up in brood-rearing? Instead of that, does not brood-rearing increase with vitality? and is not the season of greatest brood-rearing precisely the season when there is the least proportion of exhausted vitality? Instead of saying activity causes exhausted vitality and exhausted vitality causes brood-rearing, would it not be better to say that activity causes brood-rearing and exhausted vitality?

From the italics in your footnote, p. 187, Mr. Editor, some might think it desirable to keep bees in the cellar till after May 1. Would not that crowd the bees a little to get ready for white clover if the season should prove to be unusually early?

Marengo, Ill.

[The main portion of this article is answered in one of my footnotes to Straws, and in an editorial elsewhere, in this issue. With regard to the matter of fresh air, we must consider that bees are animals. The temperature of their bodies is about the same as ours or any warm-blooded animal. They require air; and while they do not breathe with the mouth, as we do, they have breathing-mouths or breathing-pores, and take in supplies of oxygen, the purpose of which is to enrich the blood, just as it does with us. I can not, therefore, see why bees should not have fresh air in cellars, and why they should not have fresh water—every thing fresh. If we can keep the temperature down below 55, and give them air every night when it is not too cold, it seems rational to suppose that, other things being equal, the conditions will be ideal.

I have been in our machine-shop cellar, where there were 300 colonies and nuclei, with the sunlight streaming through the doorway; yet so contented were the bees that light caused them no disturbance. I have gone in at other times, and turned on

an electric light, with the same result. Sometimes one bee would fly out, but the great mass of them would remain quiet.

The number of dead bees on the cellar floor was very small in comparison with the number on the floor of our out-yard cellar that did not have the same amount of ventilation. There was much more dysentery at the out-cellar, notwithstanding the temperature was more uniform. Even during warm weather, when it was 70 outside, it would be down to 50 inside. The bees at our out-yard had all the favorable conditions for wintering except *daily doses of fresh air*. An examination of this cellar showed the bees were quite uneasy, and thousands of them came out, and died on the cellar bottom. While the colonies wintered all but two, there was a general depletion in the aggregate number of bees. On the other hand, the colonies and little nuclei at the home cellar, with their daily supply of fresh air, retained their strength, and those that had a mid-winter flight, and got started to brood-rearing, actually came out stronger.

These experiments will be conducted, if any thing, on a larger scale next winter. We shall probably have one or two more cellars constructed, and in one of them, at least, we will confine the bees *a la* Doolittle, and leave them to see what becomes of them.—ED.]

CLIPPING QUEENS.

Stimulative Feeding in the Fall; Adopting the Langstroth Frame.

BY F. GREINER.

Different bee-keepers practice different methods in clipping queens' wings. Hon. R. L. Taylor said at an institute he would catch a queen by her wings with his right hand, and place her upon his knee. She would then immediately catch hold of the fabric covering his knee. With thumb and fore finger of his left hand he would grab her thorax sidewise. With a pair of scissors he would then clip the wings without there being any danger of cutting off legs.

Many bee-keepers have of late claimed that clipped queens come up missing more frequently than those not clipped. Some think the reason might be that, when a queen is held by the thorax, as in Mr. Taylor's case, her scent is slightly changed by this contact with man's fingers, when afterward the bees will regard her as a stranger. There may be some truth in this. Still, it does not explain why queens (clipped) come up missing months after the operation.

I do not think it best any more to handle queens by the thorax, when it can be avoided. It is not at all necessary to take hold of a queen by the thorax when we wish to clip her. I simply pick up a queen by her wings with my left hand, hold her a few inches above the frame-tops, and draw the

knife over the wings where they touch the end of my thumb, cutting off all the wings as closely as I wish. No part of her body has thus been touched except those remaining between my thumb and fore finger. She drops right back among her bees on the exposed frame-top, and is never molested. It is a very simple operation, and very quickly performed. The only thing to be watched is to get a good hold of her wings at the first grab. I am not sure but a queen may be injured holding her by one wing only. When caught in this way she has a notion of twisting or spinning around, which probably causes her intense pain. I thought I had lost a queen in this way last summer, for she seemed dead for five or ten minutes after I had released her. However, she was but paralyzed, and came to again later, and she may be in her hive now. Others to whom I related the incident thought the queen was simply frightened, which would not prove an injury to her. I have never before seen a queen show the effect of a scare in this manner when she was picked up properly.

When I fail to catch a queen properly I let her go again and make a second attempt later. The knife is the tool to use in clipping, for we always have one with us. The closer the wings are cut, the easier the queen may be found at any future time. The peculiarity of her appearance is a marked distinction between her and the other bees in the hive.

We are often advised by our best authorities to so manage our colonies as not to produce any bees that can become only consumers. Then, again, we are advised to stimulate our bees in the fall after the honey season by daily feeding in small doses, so that our colonies will go into winter quarters with plenty of young bees. How can these two apparently opposite recommendations be harmonized, for fall feeding means producing bees that will become only consumers? I take it that the first advice is not to be taken in the full sense of the word. The raising of a moderate amount of brood during August can prove only beneficial, and in localities that do not furnish enough bee-pasture to produce this rearing of brood during August, daily feeding for a few weeks will undoubtedly be a good thing. In my own locality we have sufficient honey coming in all through August to keep the bees storing honey, and breeding. Even drones are usually reared. It is no particular advantage to have our colonies breed much later than Sept. 1, and I would just as soon discourage breeding after that time as to encourage it. Bees, I find, exhaust themselves while breeding; and as many bees die as come upon the stage of action during the cooler fall months. Our bees here generally remain quiet during the last half of September and all of October. They do not wear themselves out. Practically the bees hatching during September are as vigorous and well prepared to endure the hardships of winter as the October-

hatched bees produced by late stimulative feeding. By Oct. 5 our hives are usually free from brood, and any combs may be removed after this date. Generally speaking our bees come through the winter in good shape, which is the proof of the pudding.

We used to hear a great deal about reducing the numbers of combs to just what the bees can cover in the fall. Of late not so much has been said on this point. Has the bee-keeping fraternity come to the conclusion that it is not necessary or best? Whatever others may think of the matter, my own experience is this: A cluster of bees is admirably fitted to retain the warmth they produce. They are not covered with fur like some animals, yet very little warmth is lost. We can often see ice and frost within the closest proximity of the cluster of bees during cold weather. Even the best-packed chaff hive shows a low temperature inside after a protracted cold spell. A few more or less unoccupied combs do not change this result to any extent. I have a few exceptionally roomy chaff hives that take a number of combs *more* than the regular (ten-frame). I used to contract to six or seven combs; but for some years I have not done so; and, surprising as it may seem, they always have wintered a little better than the other ten-frame hives.

In wintering single-walled hives on the summer stand I have not been very successful, and have not practiced it much during the last 15 years; but I can say that I always had better success when three combs had been removed and chaff-packed dummies had been inserted instead. My practice is to winter colonies in single-walled hives in the cellar; and I am inclined to believe that for me it is best if part of the combs are taken out before the bees are taken to the winter repository. This is not so much on account or for the benefit of the bees, but more for the good of the combs. In one of my cellars the unoccupied combs become moldy. It is a rather damp place. We know from experience that honey does not keep very well in a damp place. Even in my comparatively dry house-cellar honey becomes thin after being stored there a short time. It is the same with the honey in the unoccupied combs of the hives in the cellar. One might say that such a winter repository is not a fit place for bees. Perhaps it isn't; but after many years of using these cellars I find they answer pretty well their purpose, and I shall probably continue using them. More combs shall be removed in the future from the hives that go into the damp cellar.

Not long ago a bee-keeping friend from Canada asked my advice as to what size of frame to adopt. It seems to me this subject of "what frame is best" has been worn threadbare; but then, as there are always new comers it is, perhaps, best to say a word now and then about it for the benefit of beginners. This friend in Canada has ten hives now, but thinks of increasing to

100 colonies. He had been advised by experienced friends in his vicinity to use a frame the Langstroth size, but about half an inch deeper, as this depth would give better results. Well, this made me think of the bitter battles they fought in Germany before the standard frame was adopted, some twenty years ago. The hives in use there ranged between nine and ten inches in width. Those defending the nine-inch hive claimed great superiority over the ten-inch hive. The nine-inch hive was better adapted to the nature of the bee; all colonies found in hollow trees were said to have chosen a nine-inch cavity. Many other claims were made. The defenders of the ten-inch hive brought forth equally weighty reasons that ten-inch was the proper and most profitable width. The casual observer thought they were splitting hairs, fighting over an unimportant matter. It is so, with such a slight difference in the depth of a Langstroth frame of standard width. So far as practical results are concerned *there is no difference* whether the frame is 9 inches deep or 9½ inches. In by far the most cases it will be found an advantage to use a standard frame, and that frame in America is the Langstroth as made by the different manufacturers in our land. Even our friend Doolittle, who so long defended the Gallup frame as the best, has come out late years and says the Langstroth is just as good for practical results. By all means adopt the standard frame. We who went into bees before we knew what was going on in our country, and made our own hives of an odd pattern, and now have hundreds of them, can see the size of our mistake, and would give a great deal to have a change made, if it were not connected with so much work, etc.

Naples, N. Y., Jan. 31.

THE BEE IN LAW.

Keeping of Bees; Damages—When and When Not Recoverable.—Article 6.

BY R. D. FISHER.

1. *Definition*.—Damages are the indemnity recoverable by a person who has sustained an injury, either in his person, property, or relative rights, through the act or default of another.

2. *General Principles*.—Whenever an injury is done to a right, actual perceptible damage is not indispensable as the foundation of an action; but it is sufficient to show the violation of the right, and the law will presume some damage.

But no damages are recoverable for a mere inconvenience attending the existence of a public benefit; or for any lawful act lawfully done, which, if causing damage, is *damnum absque injuria*; or for any act causing no legal injury, which is *injuria sine damno*; or for an injury caused wholly or in part by the complaining party's own wrongful act, default, or negligence.

3. *Nominal Damages*.—Proof of the violation of any legal right entitles the injured party to some damages. If no actual damages appear, nominal damages are given for the technical injury.

4. *Substantial Damages*.—Where actual injury and the violation of a right are proved, substantial damages may be awarded as compensation to the injured party, and in certain cases as punishment to the wrong-doer. In arriving at the proper amount of damages the courts follow defined rules.

5. *Remoteness*.—Immediate or consequential damages may be considered. No one is held responsible for all the consequences of his acts or defaults, but only for those which the law considers the natural consequences. These are either the direct consequences or they are indirect. For all direct consequences, whether they are such as inevitably ensue, or such as have naturally ensued in the particular case, the person guilty of the cause is held absolutely liable. Such damages as the cause produced naturally but indirectly are called consequential.

In case of *tort* not involving malice, damages may be recovered, not merely for the direct consequences, but for such indirect results as might reasonably be expected to ensue by a person of ordinary intelligence, or for all the natural consequences of the wrongful act.

6. *Personal Property; Trespass*.—For asportation or destruction of his personal property, so that the owner is wholly deprived of it, he is entitled to recover its value at the time of the trespass. This is the measure of damages for the entire loss of the property. For an injury to it there is a right to a proportionate recovery.

The measure of damages for the conversion of property is the value of the property at the time and place of conversion. The element of damage to be considered in case of injury to the person is, the plaintiff's time of loss from business or employment; his loss of capacity to perform the kind of labor for which he is fitted; expenses for medical services, nursing, and mental and physical pain. The same rule will apply to injuries to animals.

We have set out the above principles of damages for the purpose of discovering, if possible, under what branch or branches damages may be recovered for injury or losses in consequence of keeping bees. In a previous article we reviewed the causes of damages growing out of the nuisances committed by bees. In this article we desire to review the rules regarding the bee as a trespasser. One who feels aggrieved by reason of trespassing bees may bring an action against the owner for damages, and may recover upon proper proof and identification of the trespassers for their original act of destruction; and successive actions may be brought to recover for damages for the continuation of their wrongful trespassing; but in all these cases damages are es-

timated only to the date of the bringing of each suit (*101 N. Y., 98*).

CAPACITY TO TRESPASS.

Courts judicially know that bees can not be stabled as other animals are; that to do so would destroy their value as property. If the owners of houses, grocers, and fruit-dealers and fruit-raisers were not careless in leaving attractions for them, bees would commit no trespass. They would go to pasture among forests, fields, and amid flowers. But the grocers, fruit-dealers, and fruit-raisers say they are not required to screen against bees if domesticated and regarded as property; that the law should protect them from the ravages of trespassing bees the same as from any other trespassing animals. This is true only in so far as identification can be made positive. The instinct of bees is well understood, but their identification is difficult. The relation between fruit-growers and bee-keepers is said to be somewhat strained. The former claim it to be fair to compel the bee-keeper to feed his bees at home in seasons when they would otherwise prove a nuisance and damaging trespassers to his neighboring fruit-grower. Whether it would or would not be possible to keep bees at home by feeding them heavily is an open question. But this plan would entail a heavy tax upon the bee-keeper. Would it be just to make the bee-keeper pay this when, quite likely, the cracked and rotting fruit which the bee would take from the neighbor's orchard has been produced, at least has set, because of the labors in pollination of these same bees? When bees find a fair supply of nectar in the flowers within reach of the hive they prefer that to fruit, and few bees then attack fruit. But it is not at all sure that liberal feeding will keep all of the bees at home, or nearly all of them, from trying to get fruit sugar or juices.

The next suggestion is that of moving away if the cost would be less than feeding. But can the bee-keeper get away from the fruit-grower? If the extensive fruit-grower can sue and collect damages for injuries to the fruit on his 1000 trees, the owner of one tree, and 1000 owners of trees within flying distance of an apiary can also collect. If an abundant bee-pasture happens to exist a few miles away, the solution is easy and moving is practical. But this is usually of short duration; civilization and improvements, farms and fruit-gardens, soon follow, and the cry is again, "Move on!" On the other hand, it is claimed that the damages to fruit alleged to be due to bees is too remote and uncertain; and, as already stated, the benefits from pollination are equal to the damages. Few if any cases have reached the higher courts, and the judgments in the lower courts are largely based upon actual damages proved, and identification of the trespassing bees.

INJURY TO PERSON OR PROPERTY.

A small son of an Indiana farmer left the team he was driving, near some bee-hives,

while he chased a squirrel. The horses backed the wagon into the hives, and the animals were so badly stung that they died. The boy was also stung so badly that he lost the sight of one eye. It was held that the boy's contributing negligence occasioned the injury and resulting damages, and no recovery could be had.

An Iowa farmer maintained a hitching-rack at the roadside in front of his residence. Near by, but within his inclose, he kept a number of stands of bees. A neighbor voluntarily hitched his horses to the rack. A swarm of bees settled upon the animals, causing them to break the tethers and run away. In their flight they collided with a team and vehicle going in an opposite direction, and both teams and vehicles were damaged. It was held that the hitching of the horses near the bees was a voluntary act, and the attack by the bees was too remote to justify a recovery from the bee-keeper for the joint damages suffered by the owners of the wrecked outfits.

In the case of *Earl vs. Van Alstine* (8 *Barbour, 630*), the New York Supreme Court held that the owner of bees is not liable, at all events, for any accidental injury they may do; that one who owns or keeps an animal of any kind becomes liable for any injury the animal may do, only on the ground of some actual or presumed negligence on his part. It was alleged in this case that defendant owned and wrongfully kept fifteen hives of bees in his yard adjoining the public highway, and that the plaintiff's horses, while traveling along the public highway, and passing the place where the bees were kept, were attacked and stung so severely that one died and the other was greatly injured. A judgment of \$71 was appealed from, and the court, in reversing this judgment, said: "In an action against the owner of bees for an injury done by them to the plaintiff's horses while traveling along the highway where the bees were kept, it appears that the bees had been kept in the same situation for nine years, and there was no proof of any injury ever having been done by them, but, on the contrary, neighbors testified that they had been in the habit of passing and repassing the place frequently, without having been molested. This rebutted the idea of any notice to the bee-keeper, either from the nature of the bees or otherwise, that it would be dangerous to keep them in that situation, and hence he could not be made liable."

If damages be done by any domestic animal kept for use or convenience, the owner is not liable to an action, without notice (13 *John, Rep., 339*). The utility of the bees no one will question, and hence there is nothing to call for the application of very stringent rules in their case. However, the question whether or not the keeping of bees near a highway subjects their owner to a responsibility which would not otherwise rest upon him has not, to our knowledge, been passed upon.



RAMBLE 201.

Honey Yield of Cuba; Cuban Honey-packages; Extracting; Hive-bottoms; Blacks Preferred in Cuba; Help, Price of.

BY RAMBLER.

So far as I can learn, no one has kept a record of the colony yield for one or more seasons in Cuba. I think it is not nearly as much as in California. For instance, Mr. Wilder, of California, secured an average of 240 lbs. per colony from an apiary of 100 colonies during the past year; and in the last GLEANINGS Mr. Raze reports a yield of 380 lbs. average from 50 colonies. I know of one bee-keeper here who has had an exceptionally good yield (so considered by his neighboring bee-keepers). Though the season is not quite closed he can reasonably forecast the result, and his average yield will not go above 160 lbs. per colony, 600 in two apiaries.

Cuban honey is all put into barrels and tierces, mostly in the latter, holding 100 gallons, and called bocoyes. The barrel, or tierce, is gauged by the dealer, and it goes by the gallon, the dealer paying for the tierce. Price of 50-gallon barrel, \$3.00; bocoy, \$6.00, or at the rate of 6 cts. per gal-

lon. This helps the bee-keeper out a little better than the practice in the States, where the price of the package is lost to the producer. It is a rank injustice, and the Cuban plan should be adopted.

Mr. Somerford uses the ten-frame L. hive, and works exclusively for extracted honey. I find the majority of bee-keepers here run their honey directly from the extractor to the barrel, not taking much care about bits of comb and bees that may get in.

This plan is adopted at Mr. S.'s home apiary. When I first entered his extracting-cabin his men were at work slinging honey. The extractor is securely anchored to a stone and cement foundation. There is drop enough for a futile strainer (futile means one that will take out the largest bits of comb, etc.), and below this the barrel. I told Mr. S. that his house looked like a cider-mill. You see that big barrel was suggestive. It smelled like a cider-mill, and, to all intents and purposes, was no better than one.

But I can make a better report about an out-apiary a few kilometers further along on the calzada. Here he had gotten down to business, and made an 800-gallon galvanized-iron tank, held to shape by a wooden frame; another, of about the same size, is doing duty in another out-apiary. One novel feature of these large tanks is the absence of a gate or faucet for drawing off the honey. Gates sometimes have a way of getting open and losing a large amount of honey. Mr. S. places the barrel or bocoy next the tank, and uses an ordinary pump for transferring the honey. The honey can be left a long time in the tank, for, like California sage honey, it does not granulate. Or if any Cuban honey does granulate it has a mushy consistency.



SOMERFORD'S 800-GALLON TANK.

I noted another peculiarity about this honey. In my experience in extracting in the States, while using the honey-knife its edge will soon gum with honey. I have always used two knives, alternating them from a water-bath; and many bee-keepers use a hot-water bath to dissolve that gummy edge. But here one knife can be used all day and no gumming. There is an acidity, or perhaps it is so limpid, that the knife always cuts freely.

The uncapping-tank is just like all of Mr. S.'s ideas—immense—6 feet one way, 5 the other, and one foot deep. He says the next one will be several feet deep. He does not want his lightning operators to stop to bother with the cappings during the extracting of a whole apiary.

The accompanying photos show two views of the same apiary. The honey-house is built against the ruins of an old stone house, and these ruins are frequent all over the country, as a result of the war. Beside the house are the barrels, the big tank, and the cart for the transfer of a large number of combs from hive to extractor.

In the other view, and near Mr. S., is one of those cement hive-bottoms described in GLEANINGS some time ago. Mr. S. found these too fragile, and has discarded them. His hives are now provided with a continuous bottom. A bed of small stones is put down where he wants the hives to stand; the surface is then made smooth with cement. Before the hives are placed it looks like a long sidewalk.

In every apiary I have visited in Cuba the hives are placed close together, or from four to six inches apart—just barely room

to step between. I strongly doubt if Mr. Somerford can get his big feet between some of his hives.

I note here the absence of the sun wax-extractor. In the summer months, when there is sun and heat enough, there is not much wax to render. In the winter, when the honey is taken, and there is wax to render, there is not heat of sun enough to have much effect, and so the old kettle and boiling method is resorted to.

Home-made foundation is used, and beesmen are liberal in the use of it; but after all of this liberal use there is an immense amount of wax shipped from Cuba.

Mr. Somerford does not take time to render his cappings as fast as taken; but after allowing them to drain thoroughly he packs them in barrels which have been sawn asunder. Cappings from the work of many days can be stamped by foot pressure into small space, and Mr. S. avers that the polka step is the most effective. The reader can gather from the illustration just how he does it.

Bro. Somerford really believes that the black bee is better than the Italian, for Cuba. It is not on account of lack of energy on the part of the Italian, but from too much of that quality. The extra energy of the Italian leads to the filling of the brood-chamber with honey, and crowding the queen down to a little patch of brood. In due time the colony becomes so reduced in working force as to become a non-producer. On the other hand, the black bee does not so energetically fill the brood-chamber, and the strength of the colony is continued through the entire honey season.



SOMERFORD'S CEMENT HIVE-BOTTOMS.

The only remedy is to extract often from the brood-chamber, which bee-men general-

to-date information, and all the time absorbing more from our abundant literature.

All the same, if they come to Cuba they must come in competition with the cheap labor.



THE POLKA STEP.

ly do here, and from both blacks and Italians.

From my limited observation I think close attention is not given to thorough re-queening; and I am sure that a less number of colonies could be managed with more profit than so many.

In the managing of a large number of apiaries the question of help plays an important part. I don't believe the native Cuban, on the average, is so efficient as the average American. But as they can be hired for about \$15 per month they will probably be preferred to the higher-priced bee-men from the States. But very few of these Cubans can read or write. Three-fourths of the people of Cuba are illiterate. To allow you to judge of the illiteracy of the rural population, I would say that I received my mail for a few weeks at a town of some 1500 population. When I would call for my mail the postmaster would take down a common cigar-box and pick out my letters and papers. All the mail for said town was in that box!

While there are a great many bright young Cubans, the rule is the other way. It will be hard to make me believe that they can so intelligently manage an apiary as a bright young man from the States, with up-

BEES AND PEACHES.

Mrs. Axtell tells us some of their Experience Last Season.

BY MRS. L. C. AXTELL.

Mr. Root:—Our bees have done us no good for several years, and do not promise to be worth caring for for the coming year, as the white clover was so dried out, and all other honey-bearing plants last year; and it is dry this winter and spring, and bees injure peaches so badly I would about as soon they would die out. I observed very carefully last fall the peach-orchard, and decided that, although the bees did not make the first incisions, they soon followed and ate up the peach, which, if they had left alone, would have been marketable in our home market. The first puncturing came from birds—sometimes only a bite or two in the finest peaches, and then they would go to another peach and take a bite, and so on until they had bitten a dozen or more on a tree; and if those peaches could have been picked right away, this would not hurt their sale very much in our home market; but if left a few hours the bees sucked out great holes in them, so they would not sell. The peach juice is also bad for bees. I suppose the birds picked into the ripe peaches because green ones could not be so easily punctured. We could see the birds pick them.

Roseville, Ill., Apr. 7.

[Mrs. A., I thank you for this testimony, and I think it is correct. Bees are certainly in one sense a nuisance many times to the peach-grower. But where peaches are to be shipped away, in modern peach-growing, the pickers are on hand and gather these peaches you mention before they get so soft that the birds are inclined to puncture them. Of course, the birds, unless frightened away, will get their work in to some extent; but these peaches can, with proper care, be utilized for the home markets, or by canning or drying. I watched this whole thing pretty well last season in the great peach-orchards in Northern Michigan. Friend Hilbert does quite a canning business in connection with shipping peaches. The peaches are canned in half-gallon jars, and put up by the hundreds if not by the thousands, and they have no trouble in selling all they can put up, in Traverse City. I believe the jars are sometimes returned; but, even if they are not, good jars are as good as cash. Mrs. Root dried a few of those overripe peaches. For my part, I like the dried peaches best.

They agree with my digestion better than the canned peaches. Now, the great moral here is: To take care of the peaches and all other kinds of fruit before the birds and bees can get a going; and I think it will pay well to do it, even in seasons when the bees do not go near the peaches at all; and I suppose all will admit we have many such seasons.—A. I. R.]

Here is something further from one who has had ample experience with both bees and peaches. He writes:

I have recently bought a whole apiary for the purpose of being certain that all of my peach-trees would get properly pollenized, as I have about 4500.

Amity, N. Y., Mar. 31. HARRY VAIL.



W. C. R., Ohio.—We would not advise you to set a bucket of syrup out in the open air, as it would result in fearful robbing, and many of the bees would be drowned. To feed syrup, it should be put inside of the hive.

J. H. G., Mich.—It is possible to feed bees in the cellar, but it is usually not advisable, as it stirs the bees up to too great activity. You may, however, feed cakes of hard candy made of pure granulated sugar without any coloring or flavor.

W. M. H., Wis.—There is no practical way of preserving queens for any length of time except in little nuclei. A dozen queens, or even more, can be kept in mailing-cages under a quilt of a strong colony for two or three weeks, and possibly a month; but the Good candy should be renewed at least every ten days, all dead bees shaken out, and fresh ones put in their places.

J. S., N. Y.—There is no objection to leaving the two extra frames of honey in the brood-nest if you have them; but if the other six combs were well filled with honey, and the bees could be accommodated on the six, I would take out the two combs not needed, even if they were filled with honey, set them aside, and then in the spring give them to the colony that might be running short of stores, whether it be the one under consideration or some other one. In any case, when the frame contains brood it should be left in the hive till the brood hatches.

B. K. W., Neb.—It is not advisable³ to use old sections that are soiled from the season before. While honey can be stored in them, yet, no matter how good the filling and how nice the honey, they are pretty sure to go at second-quality grading. This would make a difference of anywhere from two to three cents a pound; and to use brand-new sections in place of old ones, would entail a cost of less than a third of a cent.

E. H. K., Ill.—Replying to your question of March 26, I would state that you need have no fears that any one who is a neighbor of yours can, by any means known, induce his bees to go and rob yours. If your colonies are weak with large entrances, and his are strong, there is a possibility that his bees might rob yours; but if you will reduce the entrances down to the size that the bees can properly defend, you need have no fear of your neighbors' bees.

F. W. C., La.—Galvanized iron is suitable for honey-utensils where the capacity is a barrel or more; but I would not advise its use in smaller cans. In California this metal is used entirely for storage-tanks; but they hold a good many tons, and there is comparatively very little of the tank that comes in contact with the honey. Small galvanized utensils would do for a short time, but we would not advise keeping the honey in them for any great length of time. The galvanized metal is perfectly safe for extractors in any case, because the honey remains in them so short a time. Its use in this country for this purpose is now universal.



A PARTIAL VIEW OF ONE END OF OUR MACHINE SHOP BEE-CELLAR. SEE EDITORIALS.



NOISE IN BEE-CELLARS; DOES IT DISTURB BEES?

Mr. Root:—I have read with much interest this past winter the good reports you have put in GLEANINGS about those bees which were wintering under the machine-shop. I have also kept track of the reports of the Bingham cellar with its mighty ventilator. Now comes to hand the April 1st number of GLEANINGS, and states that noise does not disturb bees, and that ventilation, and lots of it, keeps the bees quiet. I can swallow quite a big piece, but the above is quite unreasonable. My thought was that Mr. Root had made a slight mistake, or was placing too much confidence in his new hobby of wintering bees under a machine-shop. In looking up the meaning of "noise" I found the definition to be, "a loud sound; outcry." I went into my bee-cellar, which has over 70 colonies in it, the hives standing on benches with neither bench nor hive touching wall or ceiling, and the bees in that peaceful mood which denotes successful wintering. I stepped two paces into the cellar, and shouted "Hello!" The bees answered with a "buzz, buzz." I could hardly believe myself; and, thinking that Mr. Root and GLEANINGS might still be right, I shouted again. This time the bees went "buzz, buzz, buzz" again, and there was a general stir among them. So I went out and shut the door, proving to my own satisfaction, as Mr. Root says, that noise does disturb bees.

Mr. Root might say the foregoing was not a right test, so here is another:

Over my bee-cellar is a work-shop, and on stormy days during winter I was nailing frames, fastening the end-bars with $1\frac{1}{2}$ -inch nails. The shop was empty; and by nailing the frames it made quite a noise. The thought came to me one day while nailing, "Does this noise disturb the bees?" The next morning, before I started to work, I put my ear to the cellar-door. Every thing was quiet, so I went to work. After nailing for about half an hour I went to the door and listened again, and found that the bees were on a general rumble. If noise does not disturb bees, what was it that caused them to roar as they did, and then quiet down as soon as I quit pounding?

As for ventilation, I have found out the past winter that bees can be wintered satisfactorily without it. F. O. R. SIMPSON.

Newmarket, Ont., Apr. 14.

[I judge from what you say you have not read all I said on this subject of noise in bee-cellars. I am quite ready to concede all you say so far as your own experiments with your own bees are concerned, yet if you were to come here to Medina I could convince you that what I said was literally

true. Going into the cellar and shouting, as you did, when quiet had reigned supreme for weeks before, was a sudden shock, and it would disturb any bees; but if you were to go into that cellar every day in the week, and shout for ten hours, you would find the bees would get used to it. Our machine-shop is run from ten to eleven hours a day, six days in the week, and the noise is *constant* with the rumble of machines and occasional droppings of heavy castings. Bees get used to such noises that are incessant, just as we get accustomed to trains going by our windows every hour in the night without waking us from sleep. The first night or so it is distracting; but it does not take long to get used to it, just as the bees get used to the noise above in the machine-shop or living-rooms over ordinary house cellars.—ED.]

HIVING SWARMS.

Which is the best method of hiving a swarm of bees—by trapping the drones and queen in a drone and queen trap, when the swarm goes out, or letting the queen go with the swarm and trying to get the bees into a hive afterward? J. C. WHITE.

Solon, Mich., Apr. 7.

[For the average beginner it would be better to use a drone-trap. I would not advise letting the queen go with the swarm, because it entails a risk of losing the bees, and at the same time causes a great deal of inconvenience and a waste of time. It is a common practice of our best honey-producers to clip one wing of all queens. When a swarm issues, the clipped queen can be picked up at the entrance, as a rule, put into a cage, and held up on a swarming-pole, where the bees will very soon cluster, or put into a hive of combs on the old stand. Wing-clipping has the advantage over perforated zinc in that it saves some expense, and does not obstruct the entrance as does the metal.—ED.]

PLANTING FOREST-TREES, ESPECIALLY BLACKWALNUT.

About twelve years ago I bought a farm in Isle of Wight Co., Va., on which there was a field of about 15 acres of rather poor worn-out soil. Ten years ago I had blackwalnuts planted on it in rows 24 feet apart each way. The field held 1200 hills. The next spring they came up in a nearly perfect stand. I gave a man the use of the land to take care of and replant, where the trees did not come up. He, in common with all his neighbors, thought I was "loony," and for several years he paid no attention to replanting, and very little to taking care of what he did not plow up or otherwise kill. So for the last two years I have replanted and trimmed them myself, and that was what I was doing last week. There are now between 500 and 600 good trees. In 1900 the first tree bore nuts, and last year about 24 of them had nuts on. This

year, if all goes well, fully 200 should bear. A very few of those trees are 25 feet high and 8 inches through at the butt, while 200 or more of them are over 20 feet high and 5 inches or more in diameter six inches above the ground; and since the nuts are worth \$2.25 per barrel, and blackwalnut lumber is worth \$100 per 1000 feet, the man who failed to care properly for the trees, and his neighbors also, admit that there is some method in my lunacy after all, although my tenant does not see why I should "fault" him for being careless about the trees, "Kase them trees is gwine to be wuth a heap course o' ten or fifteen years;" and he "lowed ef they'd a been on his lan' he'd a plowed every dratted one on em up the fust ear;" and he really thinks I should be well pleased at what he has done, in spite of the fact that, had he lived up to his agreement, I should now have had twice as many trees well on the way to a bearing size and age. This year I planted 400 paper-shell pecans and 190 Japan walnuts.

J. W. STEBBINS.

Broadcreek, Va., Feb. 5.

[I have given the above mainly to show how easy it is to grow a grove of walnuts, especially since the lumber is getting to be away up in price; and with the nut-bearing trees we can, as you notice in the above, be getting some revenue while the trees are getting to be of suitable size for lumber. Our baswood-orchard has many trees now over a foot through; and the yield of the honey from the grove is on the increase year by year.—A. I. R.]

THE NATURE AND GENERAL CHARACTER OF PICKLED BROOD.

1. Has pickled brood absolutely no perceptible odor?

2. Will there be absolutely no ropy matter adhere to a toothpick when withdrawn from a dead larva having had the disease known as pickled brood?

3. Will a comb that has been rotten with foul brood during June become filled with healthy larvæ afterward? Or, will a foul-brood cell produce healthy larvæ at times and diseased ones at other times?

R. C. HUGENTOBLE.

Miami, O., Apr. 12.

[1. Pickled brood has no odor like foul brood, nor has it a foul smell—in fact, no smell at all, as a general thing. If any odor is present at all it is slightly acid, or sour, and hence the name, pickled brood. In the advanced stages there will be a white mold over the surface of the comb; and this, in fact, is the best evidence that it is pickled brood.

2. Pickled brood is slightly ropy at times, but it never draws or ropes out more than an eighth of an inch, and, unlike foul brood, does not have a stringy character.

3. Cells that have contained foul brood may be cleaned out by the bees, and afterward healthy brood be reared in them; but

the probabilities are that those same cells containing the spores of the disease will again give the disease to other healthy larvæ. Yes, cells that have been foul-broody at one time may be apparently healthy at another.—Ed.]

GUESSING AT THE AMOUNT OF STORES IN HIVES.

Will you kindly explain in your next issue one or more methods by means of which the amount of honey in a hive can be determined without weighing each comb?

JOHN C. MCCORMICK.

Detroit, Mich., Apr. 12.

[The best way is to hang the hive on a spring balance, and thus get at the actual weight. If you know what similar hives with empty combs will weigh, and then add about 3 lbs. for the bees, you can determine pretty accurately the amount of honey in the hive. After weighing 50 or 100 hives you will then be able thus to determine near enough for all practical purposes by "hefting" or lifting the hives. Practice makes perfect, or nearly so.—Ed.]

CANDIED COMB HONEY—WHAT TO DO WITH IT.

I had a case of fine-looking honey of my last year's crop turn to sugar. Can you tell me the cause of it? and can you give me a way to prevent it? If you can, I will consider it a great favor. H. R. LONG.

Columbus, O., Mar. 29.

[You can give it to the bees or sell it to some of your local customers at a low price. I say *local* customers, because you can then explain that it is pure comb honey, granulated in the combs. Some take such honey and put it into a solar wax-extractor. The honey will melt with the wax, and run down into the pan. The wax will be on top and the honey beneath; but the color of the latter, when so treated, is affected for the worse, and is usually fit only to be fed to the bees. The cause of the granulation of the honey may be due to the fact that you kept it in a cool place over winter. But some honeys, especially some seasons, will candy, even when the conditions are favorable for keeping it liquid.—Ed.]

THE CALIFORNIA HONEY CROP.

Friend Root:—On page 227, Mar. 15, I notice an editorial and quotations from letters concerning the honey crop in California. It makes me laugh—or it would if it were not so provoking. What fools some of our California bee-keepers are! Eastern honey-producers need not worry much about the big crop in California this year, for we shall not have it unless we get two or three inches of rain yet, and then the weather will have to be just right for about three months yet. I have been in the bee business here for 19 years, with more or less success; and if we have much of a crop

this year there is something wrong with my judgment. There will be some honey in a few favored locations, but no general crop in the southern part of the State.

Of course, we can not tell what the bees will do in the central part of the State on the alfalfa. We seldom get a crop of honey here with less than 14 to 18 inches of rain. Last year was an exception. We don't often get exceptions two years in succession, but we often get two failures, and sometimes three, in succession.

This year we have had nearly as much rain as we did last year—about 12 inches; but nearly a third of it came early last fall, when it did the bee business more harm than good, as it started the sages and alfileria to growing nicely, and then the long dry spell, which lasted until February, dwarfed or stunted the alfileria so that it is not a fourth as good as it was last year; and the sage will not bloom as it did last year, or as it would if all our rains had come after the holidays. L. E. MERCER.

Ventura, Cal., Mar. 29.

BEEES IN A DEEP MOUNTAIN CANYON.

I should like to ask if bees will do as well down in a canyon where they do not get the sun until about 7 A. M., and where it leaves them about 5 P. M., as they would up where they would get more sunshine.

Mesa, Col., Apr. 9. W. C. DOBBINS.

[You probably could not produce as nice an article of comb honey down deep in a canyon as you could where the sun strikes earlier and later in the day; but I ran across fine large apiaries in California in several of the canyons, and the honey I tasted at all of them was of a heavy body and of fine flavor, notwithstanding the nights in those same canyons were quite cool. Indeed, it was very comfortable to wrap in a good heavy blanket at night in a warm house. If I knew of a good location in a canyon I certainly would locate the bees there.—Ed.]

FIGWORT, OR SIMPSON HONEY-PLANT.

If it hadn't been for the Simpson honey-plant our bees would have gone to begging into winter; but the late bloom of this plant just put them in fine condition after the dry season. This plant grows plentifully in old fence-rows, brush-piles, gulleys, and waste places. It likes a good rich sandy leaf mold, but it seems to use almost any kind, so it gets a start, and it is easy to grow from seed plants this fall or early spring. A great many will bloom the first season. J. C. DEEM.

Knightstown, Ind.

CHINESE BEES THE FORERUNNERS OF GOOD LUCK.

In a recent number of GLEANINGS I saw the statement that the bee has never been tamed; but if left to itself will always seek a home in the woods. This is emphatical-

ly *not* true of Chinese bees. *They seem always to seek a home with man*, somewhere in some sort of structure reared by his hand; and the only case that I have yet met with in all my tours of a swarm of bees in a hollow tree was in the edge of a village, in the butt of a large camphor-tree, about six feet from the ground. For ages and ages the Chinese have believed that bees bring good luck; and so for ages and ages the safest place for bees has been the human habitation, till now they cleave to man instinctively. Even superstition sometimes shows a brighter side. But may not a few generations of scientific bee culture accomplish the same results in America?

J. E. WALKER.

Shaowu, Foochow, China, Feb. 11.

SWEET CLOVER—ITS HABIT OF GROWING ON SOILS SO POOR THAT NO OTHER PLANT KNOWN WOULD TAKE ROOT AND FLOURISH.

Several years ago the B. & O. R. R. opened a gravel-pit at Belpre, O., for ballasting the track and constructing fills. Sweet clover first made its appearance in this region, so far as my observation goes, on the fill forming the approach to the Parkersburg bridge. This fill was made of gravel taken from the Belpre gravel-pit.

Last week as I passed by this pit, now thirty feet deep, I noticed sweet clover growing as thick as it could stand in the bottom. This gravel deposit is of combined glacial and alluvial origin with an occasional true boulder, brought down by the river from the glaciated part of the State. Was the seed deposited with the gravel? Dana, in his geology, speaks of plants growing from sand taken from the bottom of a well dug a few miles from the seacoast. There were no plants of the variety growing near the well, but they were found growing on the seashore. No doubt the well had tapped soil which at one time had formed the sea-beach.

[The above was sent us in the shape of a newspaper clipping, so we can not tell what paper it was taken from. It emphasizes the fact made by Prof. Thorne, of our experiment station, that sweet clover, as a rule, occupies ground where no other plant would grow; but after the sweet clover has got a start, and has been plowed under, various farm crops may be grown successfully.—Ed.]

GOOD WINTERING ON BLACK HONEY-DEW.

I have 40 colonies of bees in the cellar, wintering well so far on the blackest honey-dew you ever saw, and have 400 lbs. of the same for spring feeding. I got but little good honey last year—too dry.

A. G. MOORHEAD.

Dearborn, Mo., Feb. 22.

BEEES AND SMELTING-FURNACES.

My husband's bees are all dead (killed through the smelter smoke), and the same fate befell all bees in this county.

ALICE M. BANGERTER.

Granger, Utah, Mar. 8.

My wife is much interested in bee culture. One swarm produced 110 lbs. of honey last year—that is, surplus, besides over 50 lbs. left in the hive for the bees.

Wanatah, Ind.

S. P. HOWELL.

AMATEUR BEE-KEEPING; POSSIBLE RESULTS:
SLIPSHOD VS. UP-TO-DATE METHODS.

I like your manner of writing, of crediting young or amateur bee-keepers. The boy bee-keeper of Arizona whom you tell of is evidently progressive and up to date. I have heard men here in California boast of their thirty years' experience in bee-keeping, yet they were not able to afford a decent habitation or a bed for their weary bones, and no family to educate or support. It certainly does not speak well of any man, with no one to care for but himself, not to be able to have half a comfortable living off from a large number of bees, and thirty years' experience. Give me a wide-awake, progressive person, such as you describe Mr. Chambers to be. I too am an amateur, with only two years' experience. I am on the shady side of fifty, and have poor health to contend with; yet with little assistance last season I managed an apiary of nearly 300 colonies of bees that produced 16,000 sections of comb honey of the finest quality. Every one of the sections passed through my hands four times, and many of them six times. I folded all the sections, placed all the starters of foundation in them, graded and cased all the honey, marketed it, and collected for it; besides, I attended to many of the swarms, gathering and hiving them, placing supers on and taking them off the hives. In addition to this I did the necessary housework, cooking, etc., for two persons; contributed to several periodicals, and found time to become acquainted with the little creatures that made our living and much money for us. Under my instructions queens have been reared all winter, weak colonies built up, and we commence the season with every colony very strong; and at this writing the bees are working lively on the alfalfa. I procured my best queens of J. P. Moore.

Newhall, Cal., March 13. J. B. C.

GOVERNMENT STATISTICS; EARLY CUTTING
OF ALFALFA.

Mr. Root:—It might be an imposition on you to call for more space to discuss the honey statistical problem; but I hope you have time to read a little more on the subject. That our present guesswork belongs to some past century is quite certain. The remedy is debatable.

On p. 228 Mr. M. Brown advocates that the National Association collect and report information on the subject. While that would be an improvement, I do not think it would be as good as for the Department of Agriculture to do the work. Some reasons are:

1. The Association can not expect to get as many localities reported in many years as the Department can in one. Think of over 200,000 correspondents who are filling township blanks. These are not all honey townships, but many of them are. Perhaps no correspondent produces every thing re-

ported—certainly few do; but I think it is the most reliable plan yet devised. Mr. B. says: "Suppose the Department would add a honey column to its blanks now sent out, not one in 500 sent out would be filled out practically, intelligently, and with reliability." Would not that sentence be better if it closed with the largest interrogation-point in your office?

Why, yes, the thing is fact.
Though, in regard to numbers, not exact.

Honey-producers should fill out these reports as much as possible, or inform those who do. But remember that they are not all intelligent and reliable.

2. It is to our interest, and for the public good, that these reports be accepted by all classes. That would never be done so completely if the Association gives the reports as if done by the Department. Official information is the thing that counts in this age of the world.

3. The cost would be considerable if conducted by the Association. Our industry is to be taken up in connection with various other lines, and the cost to the government would be light. As it is for the public good it should be done at public expense. Why does the wheat-raiser turn over his crop report to the Department, instead of conducting it as a private enterprise? Every honey-producer should learn why, and then drop in line?

To my mind there is nothing that would do so much to put the honey market in a healthy condition as reliable statistics well distributed and generally accepted.

You are entirely correct about the early cutting of alfalfa. Many bees have recently been moved from this valley to Nevada, mainly because alfalfa is not cut so young there, although the parties are going into foul-broody country, and expect loss from that source.

W. A. H. GILSTRAP.

Grayson, Cal., March 29.

[The only question about government statistics is that they are put out too late to have any appreciable effect on the market; but whatever the government does it should have the intelligent co-operation of bee-keepers as a whole. The whole trouble so far with government statistics is not so much that the method of securing those statistics is defective as it is that some States make thorough reports while others do not. Again, it happens that the statistician or person whose business it is to gather the statistics does not get track of all the small producers. See editorials.]

So it is a fact, is it, that, on account of the early cutting of alfalfa, bee-keepers are already being compelled to migrate from localities where alfalfa is not cut before blooming? My, oh my! if it is true that early-cut alfalfa makes a better hay, or, in other words, puts more money into the pocket of the rancher, then the carloads of alfalfa honey now produced will shrink into mere tons in the future.—Ed.]

EXTRACTING A WHOLE SUPERFUL OF COMBS AT ONCE; ANOTHER PLAN FOR DOING IT.

I can tell you how to overcome the difficulty in extracting an entire shallow extracting-super at one operation, or, rather, two or four of them, as spoken of in your footnote to the article by J. Hammond, page 244.

We will have our combs built on thin boards, deep cells, as has been done in Germany (so says Prof. Cook's Manual). There will then be but half the amount of uncapping necessary, which cuts that difficulty squarely in two. Put four such supers in the mammoth extractor; no tin separators are necessary; the wood cell-base answers for that. No reversing is necessary, as the cells are all on one side; the honey rains out on to the wood cell-base; then turn the supers half way around, and all the honey will be thrown from the wood partition. I quote from Cook's Manual: "In Germany it is recommended to press the foundation for extracting-frames on to a board so as to have the cells built out only on one side, and elongated so as to hold much honey. This gives strong combs, and saves turning the frames when extracting."

Seriously, what do you think of this? With such combs would it not be practicable to extract four shallow supers at one operation? Tell Rambler to send on his \$50, for I have told him how (perhaps).

E. F. ATWATER.

Boise, Ida., Apr. 7.

[The one-sided board combs have never been a practical success, if I am correct. I doubt whether bees would store honey in them as readily, because each comb would be shut off from its neighbor by a wooden partition or separator, making separate and distinct clusters. This has been one objection to solid separators in an ordinary comb-honey super. Again, these single-surface combs would have very deep cells—probably twice as deep as those of ordinary combs. If so, the honey would hardly ripen as well.

If there are any of our readers who can give us any information regarding these one-sided extracting-combs we should be glad to hear from them.—Ed.]

WINTER STORES; AMOUNT CONSUMED OUTDOORS AND INDOORS; A REPLY TO DOOLITTLE.

After the bees in October have carried the loose honey to the top of these hives I have two men weigh and mark the weight on all hives. I then add to or take from all hives till each one has from 30 to 35 pounds (net) of honey for winter. I have done this way for years, and find very little difference in the amount consumed whether packed on summer stands or in cellar. No man that I have ever heard of ever put 100 colonies in the cellar or out for a five-months' stay, on one ton of honey.

The temperature of the earth below the frost-line is between 32 and 34, yet Mr.

Doolittle has no trouble in keeping his bees at about 50. How is that 10 to 20 degrees of heat obtained? I need not say by the consumption of honey—every one knows that.

My estimate is correct. From one-fifth to one-fourth of all the honey eaten in winter by bees is water. Other conditions being equal, no water above that is needed. Where does the water that runs down Mr. Doolittle's stone walls come from? We may yet find that the dry heat of a steam-engine is what we all need to winter our bees in the most economical manner.

Farwell, Mich.

T. F. BINGHAM.

[It has been set down as a rule that the consumption of stores indoors during winter was very much less than outdoors. Our own experience during the past winter showed us that our cellar-wintered bees consumed very much less than the outdoor bees—so much less that we are beginning to feel that we can not afford to winter outdoors, especially some seasons when we have to buy sugar and feed syrup when we run 500 colonies and nuclei in one place.

There have been actual weighings of the amount of stores consumed during those months of confinement in the cellar, that showed an actual shrinkage of from 5 to 12 lbs., the average being somewhere between 10 and 11 lbs.; and there have been actual figures to show that the actual consumption outdoors, by colonies of the same relative strength, was about twice as much. See GLEANINGS, page 102, 1901.

One of the main arguments for indoor wintering has been a saving in stores. Now, if stores are consumed *in proportion* to the amount of cold, and the temperature of a bee-cellar is from 40 to 50, and the temperature outdoors is anywhere from 10 above to 20 below zero, then it would seem to me there must *necessarily* be a larger shrinkage of stores outdoors.—Ed.]

THE OPINION OF AN EXTENSIVE FRUIT-GROWER ON THE VALUE OF BEES AS POLLINATORS.

I had hoped to handle honey as well as fruit; but I am kept so busy running my fruit-farm (7000 grapevines and 2000 fruit-trees) that I simply have not time to give to bees. In a year or so, after I train my help on my fruit-farm, I may conclude to try the bees. Meanwhile my neighbor's 40 hives of bees, and the wild insects, seem sufficient to cross-fertilize my fruit. In my business I consider honey-bees a great aid to me, not only in fertilizing the flowers, but after hornets puncture a grape the bee kindly sucks out the juice, which prevents that one berry from spoiling several more.

W. T. LINDSEY.

Tryon, N. C., April 17, 1902.

[Among the intelligent progressive fruit-growers, those who are above prejudice, the bees are always considered to be friends.—Ed.]



Blessed are the pure in heart, for they shall see God.
—MATT. 5:8.

While I write, April 17, we are busy with the seed business. In fact, we are almost always busy at this season of the year; and we are trying hard to profit by experience in preventing the mistakes, misunderstandings, and oversights of the past years, by doing better this year than we ever did before in serving our customers promptly and honestly. Well, day before yesterday a letter was put in the tray from one of the friends, asking what we meant by charging him 75 cents for an ounce of Red Wethersfield onion seed. I went at once to the copy-book, and there it was in plain white and black—"One ounce onion seed, 75 cents." I asked the clerks who put it up how they came to send him an ounce, and charge him the price of 16 ounces. Before they would admit they had sent only an ounce they wanted to see the order. This was hunted up, and here is a portion of it:

Cissna Park, Ill., Apr. 3, 1902.

1 oz. Grand Rapids lettuce.....	5
1 oz. Rocky Ford canteloupe muskmelon.....	5
1 oz. Landieth's Boss watermelon.....	5
1 oz. Prizetaker onion.....	20
1 oz. Red Wethersfield onion.....	75
1 oz. radish, Wood's Early Frame.....	5
1 oz. Trophy tomato.....	10
1 oz. salsify.....	10
1 potato-planter.....	75

DR. C. S. DIETZ.

You will see by the above that our good friend Dietz made the mistake himself. He had been writing "1 oz." so many times that, when he got down to where he meant to say a *pound*, although he carried out the *price* for a pound, he continued writing "1 oz."

Now, some people (perhaps some *seedsmen*) would say it was the man's own fault, and would send him exactly what he ordered, and charge him exactly the price he put in the order. Of course, any reliable seedsmen would rectify the mistake by sending him the other 15 ounces of onion seed; but perhaps not *every* seedsmen would pay the postage (the whole order went by express), because these 15 ounces did not get in the package. I suppose, however, the greater part of the up-to-date seedsmen would say at once it was the business of the seedsmen to examine and scrutinize very carefully every item of the order to see that the man was ordering by the advertised catalog prices, charging him no more or less, even if he did send 75 cents for 8 cents' worth of onion seed. In fact, we do have just that arrangement here in our seed department. Our young friend Frank, who almost never makes a mistake, did go over this order and correct the prices. For instance, in the last item he put the potato-planter at 60 cents, instead of 75, the last

year's price. But for some inexplicable reason he did not notice that our friend was charged 75 cents for an ounce of common onion seed. The clerk after him did not notice it; and I suppose the typewriter clerk who makes the invoice did not consider it any of her business to notice whether onion seeds were worth 10 cents an ounce or \$10. We sent the man a humble apology, and paid the postage on the 15 ounces of onion seed. Let me say for friend Frank, I do not believe that, in all the fourteen years he has been in my employ, he ever made a mistake like that before. I had the order in my hand, it is true, and I noticed that the man had put the old price on the potato-planter; but I did not go through the other items; for where I have good careful helpers I do not give my attention to these little details now unless the clerks come to me for something that is not clear, and needs my maturer judgment.

You may wonder why I have given this illustration. Well, there are several points I wish to make right here. The first is, that every thing of this kind gives the man who is building up a business an excellent opportunity to prove to his patrons that he is not altogether "after the almighty dollar." Somebody wrote a few days ago, "Mr. Root, for certain peculiar reasons I was going to send my order for seeds somewhere else this time; but when I got a letter from you, inclosing 5 cents in stamps, saying I sent that amount too much for the things I ordered, it turned the scale. I am going to continue doing business with a man who is so conscientious that he takes a two-cent stamp to send back 5 cents that was left over."

Now, we did not do that because we thought it would pay, or advertise our business, but because we decided it was the only fair, straight, honest way. Five cents is not enough to place to a man's credit, and our book-keeper decided it would be the best and simplest way just to send him the surplus, even if it did cost a little to do it. We want to be right and square with our friends in every deal. We want *all* of our clerks to lose sight *entirely* as to whether money comes into our pocket or that of somebody else, in every transaction. We want to love our neighbor as ourselves.

I am now going to say something that will sound very much like boasting and bragging; but if you will wait till I get through with my story, perhaps you will change your mind. First, if this transaction had passed through my hands I do not think I would have overlooked the fact that this man sent nearly ten times as much money for his onion seed as he needed to. The reason is this: When I first started the seed business (and, in fact, when I started GLEANINGS), I felt so thankful to every one who sent me an order, or decided to subscribe to our little journal, that I tried to show my gratitude by reading his letter over carefully just to see if I could not give him a "happy surprise" by doing

a little *more* for him than he expected me to do. It has been a great pleasure all my life to see if I could not, according to the terms of my advertisement, do a little more for the man who trusted me with his money rather than do a little less. It is this fashion, or sort of spirit, if you choose, that has built up our business. I know there are some who, every little while, throw out flings about the Root Co., saying they are grasping and greedy—after the almighty dollar, etc. But I do not feel troubled about such things now as I once did, because anybody who follows us up, and gets acquainted with us, knows it is not true. A single transaction may look bad; but if an explanation is asked for, I think it will be forthcoming. It is not fair to judge a man by a single incident.* We must look at his record all along, day after day, week after week, and month after month. Well, this fashion of mine, of trying to do a little more than I agreed to, is one thing that has built up our business. I am sure the boys feel just as I do about this, although they may not have the peculiar gift that God seems to have granted me to talk things over and make an explanation and make things pleasant.

Now, that is considerable bragging, is it not? But I want to brag just a little more, before I take the other side. In all my years of business, amounting now to about fifty, I have been averse to going to bed at night until every wrong was righted—that is, so far as it could be. If I gave a man an ounce of onion-seed and took his money for a pound, I could hardly go to sleep until I had sent him the other 15 ounces. If it was the other way, and I had given him a pound by mistake, and charged him for only an ounce, *then* I felt disturbed. Funny, isn't it? Well, the funny part of it is that sometimes the man would pay me for the 15 ounces he got by mistake, and sometimes he wouldn't. A good friend in Pennsylvania (I might give you his name, but I guess I will not) once by mistake received a receipt in full on all accounts up to date. At the time that receipt was given he had a big box of foundation that was not paid for. He held on to his receipt up to date, and said it covered the whole matter, and said he would not pay us a cent more. I labored with him for over a year, and finally induced him to admit that he had not paid for that lot of foundation. He said, however, he was a poor man, and hadn't the money then, but, God helping him, he would pay it all. After that he got over into Satan's hands again and repudiated the whole thing. We put it in a lawyer's hands, and spent some

money in trying to collect it. The decision was, that his contrite letter, admitting his indebtedness, was wrung from him under great pressure, and would not stand law.

Now, I believe it *is* true that I have all my life been troubled just the same, whether the money that was lost went into my pocket or into that of somebody else. This thing was true, even before I became a follower of Christ Jesus—that is, to a great extent. I seem to have been "built that way," and therefore no very great credit is due me. I think the credit belongs more to my good father and mother for having so carefully taught me to be honest and square, even in my childhood days. Now, if you will excuse so much boasting we will talk about something else; but we shall probably get around to the same subject before we get through.

Last Sunday evening our pastor gave us a sermon on the life of Jesus Christ. He said, among other things, that Jesus never preached a temperance sermon; he never gave us a sermon on gambling. He warned us against licentiousness and other evils, but he did not exhort mankind to be specially careful in regard to any one sort of sin. He said, "Blessed are the pure in heart, for they shall see God," and that covers the whole thing. If the heart is pure, and in it is an honest, sincere love for truth, righteousness, temperance, and purity, then these other things are all unnecessary; and, in fact, the only real remedy for sin in all its forms is a change of heart. Christ said, "Ye must be born again;" and this new birth means that the whole being shall be filled with the spirit that stirred Christ Jesus when here on earth. I told you I am naturally unselfish where money matters are concerned. Let us take a glimpse of sin where money does not figure.

A daily paper of April 12 tells us that Prof. Joseph M. Miller, a Detroit music-teacher, has just been arrested for the murder of a beautiful young lady. Let me make just one brief extract from that paper:

"When did you make up your mind to kill the girl?" Miller was asked.

"Last Wednesday afternoon," he answered. "I was thinking of what could be done, and of my being married and with a family, when my eye fell on a hatchet up at the house. It seemed to tell the way out of the trouble, and the idea of killing the girl swept over me with irresistible force then."

"I felt that I had to do something," he went on in a lower tone. "I felt that I had to get rid of her. She was infatuated with me, crazy after me, and constantly chasing me. If I gave a concert anywhere she was sure to be in the neighborhood."

I read over very carefully once or twice the particulars as given in the daily, and I wish to paraphrase the account a little—that is, I will supply some things from my imagination that may be true in this case or may not be true. Let us suppose this music-teacher was acquainted with the father of the girl. He was a married man, and had children of his own, we are told. These two men may have been friends. All their deal may have been honest and square. This music-teacher may have been just as

*We clip the following from the *Morning Star*, of Boston, Mass.:

It is easy to suspect a man of being a rascal, to charge him with being a rascal, and even to prove him a rascal, provided that lies are good evidence, and he has no opportunity of contradicting or disproving them.

But suppose when you have proved that man is a rascal, the man himself refuses to be a rascal. What can be done then? Proving a man a rascal does not make him one—it MAY only show the rascality of those who have tried to blacken and defame an honest man.

honest and fair in money matters as I am, and may be more so. In teaching music to his pretty young pupil they became more and more acquainted. No doubt, conscience warned both of them that they were treading on dangerous ground. But Satan was carefully and slowly, yet *deliberately* "beguiling" them both. They both knew it, no doubt, and both knew it was Satan's work; but it was so fascinating that both decided to go just a little further with it. Let me tell you some things the paper did not tell. This young girl taking music-lessons became a very *apt* pupil under the stimulus of this new experience that had crossed her path. She showed wonderful proficiency, and perhaps her teacher never before found a pupil who followed details and profited by careful instruction as she did. At the same time, this music-teacher, too, found *new enthusiasm* in opening up and unfolding the science of music to his bright and skillful pupil.* Oh! I know how it goes, God knows. I know all about these things. Things finally came to a pass where both decided to stop; but they did not know, and humanity, without the help of Christ Jesus, *never will know*, the danger that stood before them. They were both standing in the rapids just above the brink of Niagara, and yet they could not be made to see it. Both struggled in vain. They grasped hold of rocks and bushes, and as drowning men catch at straws to save themselves; but the current was too strong. They went down.

The last paragraph in the quotation I have made tells the story. He says, "She was infatuated with me, crazy after me, and constantly chasing me." To be *sure*, she was. When he should have been teach-

ing her music, and music only, as he had agreed to do with her father, he was teaching her "infatuation." He deliberately *made* her crazy after him. How could she do otherwise than "chase" after him, especially when the time came when he wanted to avoid her, for they stood together in the relation of man and wife, even though he was a married man with a family already? This thing could not continue. He urged her to go to an asylum and be cared for. I suppose there *are* "asylums" for just such unfortunates. She knew what this meant, and knew the ruined life that stood before her. She refused to go, but at every opportunity plead with him to desert his wife and children and run away with her, away off where nobody would ever find out that they two were not *legally* man and wife. Why didn't he do this? He had told her perhaps a thousand times that he loved her more than he did his wife and children or any thing else in the world, and she believed him. He reasoned that, if she could be put out of the way, he could hold up his head in the world as he had been doing, and keep on with his profession. The prince of darkness that first started them on this downward career kept following them up. He urged this girl to get the married man to run away with her; then he put it into the head of the music-teacher to put her out of the way. He yielded to Satan's suggestions, and brutally murdered the girl he had professed to love—the girl he had deliberately *led* astray, for he was much the older of the two. Murdered her—how? *With a hatchet!* This he confesses.

Now, this professor of music and this pupil of his were both honest and upright. I take it—people in good standing. They were honest in their deal. They did not think in the outset of being untruthful, nor of stealing anything from anybody; but, oh my God! what an end this little harmless transaction had!

I have given the above as a warning; and I have given it, too, to illustrate how people who are honest in dollars and cents may commit a still greater wrong than robbing their neighbor of hundreds or even thousands of dollars. Men are not all tempted alike; they are not all "built" after the same model. Before my conversion to Christ Jesus I loved truth and honesty in money matters; but it was a negative virtue. But when reading that account of the music-teacher and his pupil, it burst on me that, had it not been for the saving power of Christ Jesus, my Savior, my record *might* have been like that of that poor unfortunate man who is now on his way to prison for life; and were it not (even now) for the constant presence of the spirit of this dear Lord and Savior in my heart I might not be much better than the music-teacher. While I would not for a moment discourage people from signing the pledge, and doing every thing they can in every way to "rescue the perishing," yet I feel again and again that the only safe and perfect remedy

* There is nothing else in the world that will so suddenly open up and develop and bring to the front the powers and ability of either man or woman as the stimulus of this thing called love between the sexes. It is like the unfolding of a beautiful rose when the sun suddenly comes out after days of clouds and days of storms. In a few months or even a few weeks a girl shows an ability, skill, and intelligence, as well as ambition, that she has never exhibited to anybody before in her life. In fact, she did not know herself what she could do until some good man (or you may say some man whom *he thinks* to be good) has told her of the story of his love; and unlawful or criminal love has much the same effect. A man sometimes excuses himself—we will say a music-teacher—and *gives*, as an excuse for paying so much attention to a certain pupil, that this particular pupil has rare *ability*, and is going to make a stir in the world. Perhaps her rare ability becomes manifest because he himself has given her more attention, and has put more enthusiasm into his business of developing her latent talents, than he ever gave any other pupil before in his life. This stimulus and enthusiasm are all right. They are some of God's great gifts. Sometimes where a man of great ability marries a woman whom the world calls "beneath" him, if he truly loves her he may in a little while raise her up to his own level—yes, even though she lack education in her youth, and refinement; and even though she had no taste for music and the sciences, this man may, by his love and devotion, lift her up and develop her, and cultivate in her a taste for things she would never have thought of nor cared for at all under other circumstances, and this thing is all right. It is one of God's most precious and greatest gifts. But Satan gets hold of it, just as he gets hold of every thing that is pure and good (if he can), and simply uses it to bring about ruin, shame, and crime.

for all these dangers is in accepting Christ Jesus as the redeemer of mankind, and putting your hand in his, and letting him lead—in uniting with Christian people, and in making the Bible your daily study—in asking him *daily*, in the language of David, to “create in me a clean heart, and renew a right spirit within me.”

Since the above was written we learn by the papers that Prof. Miller has been sentenced to the penitentiary for life, and that sentence was passed within 72 hours from the time the murder was committed. May God be praised for the fact that the law does *sometimes* nowadays meet out a *swift* punishment as well as a *sure* one! Now, then, may all the world understand that there is no need of lynching, especially when it is possible *by law* to try a man and sentence him within three days from the time the crime was committed.

PURCHASING REAL ESTATE WITHOUT SEEING IT, IN ANSWER TO “SPREAD EAGLE” ADVERTISEMENTS; ANOTHER “FLORA” HOME.

Dear Brother Root:—How I would enjoy grasping your hand and having a good talk! I have taken GLEANINGS nearly all of the time since you began its publication. Your Home talks have been of great interest and help to Mrs. S. and myself in times past; and now when we are in trouble we come to you for such help as you may give us, and to caution others who may be on the point of making the same disastrous move we have done.

First, we wish you to notice the principal reasons why we came to make our mistake; namely, having confidence in publishers and advertisements inserted in our great and trusted religious papers, the *Christian Herald*, *Christian Endeavor World*, and others. I firmly believe it the duty of every editor and publisher of a religious paper to be positively certain that every thing contained in their papers, from beginning to end, be clean and reliable, and to refuse all unclean, doubtful, and fraudulent advertising, regardless of the money loss to them, and I believe that they will have to answer in the future for all the loss, injury, and suffering caused by accepting fraudulent advertisements.

We are now in the widely advertised Maywood Colonies, Corning, Tehama Co., Cal., under the management of Foster & Woodson. I inclose, under another wrapper, a copy of a booklet such as have been and are now being sent all over the world by the tens of thousands; also a copy of a regular paper published by Foster & Woodson, and sent in like numbers, telling of the fine chances here to live and make money by fruits and vegetables, etc. Please read them carefully, and then you can realize the situation, and the fraud and injury being done to people in all parts of our land. It is a fraud to conceal a fraud; and before God I can not keep quiet and let matters move along as they are doing, and not let our good people know something about this place. I shall tell only the strict truth, and might add a great deal more with a clear conscience. Doubtless I shall have to suffer severely for doing my duty thus far. Foster & Woodson are selling land right along to outside people everywhere, and people are coming in continually, who have bought land in the past, most of them having had it planted out to trees for some time. Upon arrival they find things in bad shape—trees extremely small and poor, many dead, land in bad shape, and much of it very poor, and the outlook discouraging for any profit in the future. Disappointment and trouble are the rule. When they try to sell out at almost any price, they find no one to buy, as there is a general dissatisfaction and desire on the part of almost every one here to get away if possible; but they can not sell their property.

On our way out here we became acquainted with a fine gentleman and wife from New York, who owned an orchard here, planted two years before for them. They stayed some two or three months, lost nearly

\$2000, and returned home. There is good reason to believe that there are very many similar cases happening right along. Vegetables will not grow here to any extent without water, and trees do not do much better. There is no way to get water except by power pumping, as wind power is nothing but a plaything. To put in power pumps costs too much, for each one has to look out for himself, and most of the people here have already spent about all they have on land, trees, and buildings. Those who had most have lost most. I would say to all, *don't* spend your money on property until you have seen the place yourself, and *then* not in a hurry, as there are many things that are wrong, and to be found out only by waiting. Above all, do not believe what is told by a lot here who wish to sell out.

Two years ago, after reading a great deal about this place in books and papers similar to those sent you, and seeing advertisements and notices in the papers named, and others, we bought five acres of land here at \$50 per acre. Last September we sold our nice little farm and stock in Massachusetts, stored our furniture to be shipped later, and came to this colony—myself, wife, and a large family of boys and girls. We found the place very drear. There were three saloons, an open bar in the Liersch Hotel, and one also in Hotel Maywood, owned by Foster & Woodson.

There was practically no fruit to be seen, as there was none grown last year to speak of, on account of a freeze in April. We began to look for work at once, but could find none far or near until into November, and, when obtained, it was of the very hardest and most disagreeable kind. Up to date all the work possible to obtain has amounted to just \$66.85, and yet we have all been anxious to work. All the money we had left upon arrival was spent by Nov. 1; since then we have simply existed in a destitute and nearly starving condition, as we were bound not to go in debt, even if it had been possible. The above amount has been all we have had to live on for five months—eight of us. What we have suffered, God alone knows. Our land is unsalable at any price. We have lost our all, and are left in a strange land among strangers, destitute, discouraged, nearly starving and homesick beyond description. When east we had plenty of every thing; here, nothing; and no ray of hope for the future. All our hopes for our children are blighted unless we can get away.

If it were possible for me to return to Massachusetts early this spring I could, by working at my profession, earn enough to keep us through the summer and pay the passage of my family back east in the fall. But how can I obtain the means to return? I can not borrow it, for I have no security to give any one, except my word, a good character, clean industrious habits, a good profession, and good references. We trust God will open a way out in some form.

Yours in brotherly love,

Corning, Cal., Mar. 24.

I have given the above entire because it tells the story better than any thing else can. The accompanying booklets and periodicals picture the locality as a veritable garden of Eden; the finest illustration of California groves and fruit had been gathered the State could furnish, and these were supposed to represent the locality in question. While the above letter is doubtless a truthful statement, I am inclined to think it gives rather the dark side. In almost all such places I have found men who are experts, and who have probably an abundance of means, who have made very pretty places in spite of the discouraging surroundings; but I found whole towns of people, both in Florida and in California, who were very greatly disappointed in just about the way our brother has pictured it out to us. Now, dear friends, take warning before you are “*beguiled*” by these enticing pictures seen in the advertisements of real-estate dealers. I am pained almost every day to see whole pages occupied in Christian home papers by such advertisements; and I really fear it is a fact that religious papers open their columns to such swindles when the average

purely agricultural periodical would not sell the space for such a purpose at *any* price. I hope our religious papers will read the above letter. The writer has asked us to withhold his name in print, but we can furnish it whenever it is wanted.



FARMING WITH GREEN MANURES.

More and more attention is being paid to this matter, especially since farm labor is so high, and it is so difficult to get skillful help at any thing like a moderate price. Green manures are right on the land where you want them. All that is necessary is to plow them under. Then comes the problem of getting as much humus as possible to plow under the soil at once. The book I have so often spoken of, "Farming with Green Manures," gives several plans for getting two or more crops to plow under with only one plowing. From the *Country Gentleman* for March 27 I clip the following:

Before July I cut a piece of hay land, then plow down the sod or stubble; then sow two bushels of cow peas to the acre right on the furrows; then put on a disk harrow or a Clark's cutaway until I have a good seed-bed for buckwheat; then sow one bushel of buckwheat per acre; harrow and roll; then wait. The buckwheat will make headway above the cow peas, and, when in bloom, make one wonder where the cow peas are. Buckwheat ripens and comparatively disappears. Now the cow peas assert themselves, and one soon wonders where the buckwheat is.

About the middle of September I sow *right over the top* of the cow peas two bushels of rye per acre. The shade and retained moisture of the cow peas cause the rye to soon germinate, and with the first frost the cow peas are killed. Now comes the time for the rye to assert itself, which it does so well that, before winter comes, there is a fine stand of rye, which is again protected during winter by the dead cow-pea vines.

By corn-planting time next May I have a fine growth of rye, waist high. I now attach a heavy chain to the beam of the plow and outer whiffletree and *wrap* under the whole mass of vegetation completely out of sight. If you think it is easy fun, try it. It sometimes gets to be such tough fun that I have to put on the cut-away harrow and cut all up before plowing under. *It has not interfered with capillary attraction.* I now plant my corn.

With the above arrangement we get three crops to plow under with only one plowing, and would thus lose the use of the land only from, say, July 1 till corn-planting time next season. I have not tried the experiment, but I have grown cow peas, buckwheat, and rye all separately, to be plowed under. I know from experience that the buckwheat will outstrip the cow peas; and I am pretty sure the cow peas will finally outstrip the buckwheat; and I think I know, too, that rye would come up and do grandly if sown right in among cow peas and buckwheat; but instead of planting corn the next May I would plant potatoes. A good growth of rye is the nicest preparation for a crop of potatoes I know of. The only thing that troubles me is that the buckwheat seed might come up among the pota-

atoes, and that would make as much work as to cut out weeds. A faithful use of the weeder might kill the buckwheat and not injure the potatoes. I can tell best about that by trying. I have seen buckwheat come up in potato-hills so it had to be pulled out by hand; but I think it was because the spring was so late we could not use the weeder as we should have done otherwise. The above arrangement would be the one for the bee-keeper, because he would get a full crop of honey from the buckwheat; and, with a favorable season, quite a little from the cow peas also. The best way to get this tremendous growth of rye under is to have a plow with a sharp revolving-disk coulter to slice right through the rye so it can not clog around the beam of the plow. We used such a one last season.

NITRATE OF SODA; CHEMICAL FERTILIZERS, ETC.

Mr. A. I. Root:—I have been reading your book on tomato-growing, and I see on p. 97 that your experience with nitrate of soda about coincides with mine. How is it that men like T. Greiner, Harris, and other shining lights, recommend it? In fact, I have not been able to detect any difference with any commercial fertilizer as yet, but have never tried guano. Now, Mr. Root, please recommend to me some brand that you know will be the best for extra early cabbage and early tomatoes; also other very early truck. My soil is sandy loam and clay loam; also some black loam with mostly clay sub-soil. I use a small greenhouse to start my early plants. As for potash, I can get all the wood ashes gratis; but the little lot I have just purchased is not very rich; but I want to do the best I can with early truck this coming season; and if I only knew just what kind of fertilizer to use I would try some. Any information you will impart will be thankfully received and duly appreciated.

What book on gardening would you recommend for me—one that is the most up-to-date? I have Henderson's Gardening for Profit, and Greiner's How to Make the Garden Pay.

Of course, I know good stable manure is the best thing; but I will not be able to obtain enough for this season's crop at present, and will have to resort to the next best fertilizer.

A. S. KITTREDGE.

Hamilton, Ind.

Friend K., I have never been able as yet to find any chemical fertilizer that did enough good to warrant the expense—in fact, I have hardly found any thing that did any good at all. Stable manure is all right, and pays every time. Guano is like stable manure, only it is very much more concentrated. It always produces a result, but it is too expensive to be even thought of. I have used up a 200-lb. bag of nitrate of soda, and have never yet been able to see that it did any good *anywhere*—that is, on my own ground. Poultry manure is all right, and my neighbor Hilbert has bought a 200-egg incubator, and is planning to fertilize his peach-trees with poultry manure. Of course, he expects the poultry to pay expenses aside from the manure they furnish. Hard-wood ashes have also, as a rule, proved beneficial on all kinds of crops. Where we burn up a big stump or a log-heap, there is always a marked improvement with any crop on that spot of ground. In conclusion, I believe our best authorities in almost all of our agricultural papers tell all questioners that one can not tell what will succeed in a certain soil without mak-

ing a test. Try some of the various fertilizers advertised, on little plots of ground, and do not invest in anything until you find by actual test that it gives good results on *your* ground.

In regard to books on gardening, after the two you mention I think I would have Terry's books on potato and strawberry culture; Gregory's little books on cabbages, squashes, and onions are all right. "Talks on Manures" was written a good while ago, but it is still a valuable book. Can you not buy stable manure by the carload in some large city not far away?

DIFFERENT VARIETIES IN THE MATTER OF
GARDEN SEEDS; HOW MANY KINDS
DO WE REALLY NEED?

A bulletin from the United States Department of Agriculture is just at hand, entitled, "A List of American Varieties of Peppers." How many do you suppose there are? Well, they have enumerated and named 134; and this same bulletin gives us the following piece of information in its preface:

In the Yearbook of the Department of Agriculture for 1901 it is stated that American seedsmen cataloged the preceding year "685 real or nominal varieties of cabbage, 320 of table beets, 340 of sweet corn, 560 of bush beans, 255 of pole beans, 320 of cucumber, 530 of lettuce, and an equally large number of varieties of other vegetables."

In counting the number of these varieties, names were included which differed from others simply by the addition of a descriptive word, such as "improved," "large," "early," or the names of persons, while other varieties, having attached to them unimportant descriptive words, such as "select," "new," and "choice," were not included.

I am planning this summer, as you know, to test a good many seeds on my trial-grounds in Northern Michigan; but when it comes to 685 kinds of cabbages I shall have to be excused. I do not know exactly what the Department of Agriculture thinks about it; but if these seedsmen do *not* get a good many kinds of cabbage seed out of the same bag, I think they *ought* to do so, and a halt should be called in this business. Our experiment stations, when they have made tests, have proved pretty conclusively that several seedsmen are up to the trick of putting a new name on some old well-known variety, and then booming it up to the skies. I have caught one potato-grower in this very trick. When I furnished proof of it so he could not get around it he did not say anything, for the simple reason that there was nothing to say. Now, our experiment stations in the different States are the ones to rebuke this sort of swindle. Amateur gardeners and hard-working people are sending to seedsmen four times the actual worth of certain seeds just because they do not know the same thing is well known, and on the market (under its *real* name) at a reasonable price.

IT LOOKED "SILLY"—OUR HAND POTATO-
PLANTER.

You ask about the potato-planter. I bought one of you last spring, and liked it very much; but the

ground must be well prepared for it to do its best. I could induce no one else to try it; they said it "looked silly," but it wasn't.

Serena, Illinois, Jan. 8.

MRS. J. BAGLEY.

Well done, Mrs. B. If those people who thought the little machine looked "silly" could see the people plant acre after acre, even to the extent of two acres in a single day, by one person, I think they would be the ones who would "look silly" with *their* methods. I think you make a good point, however, where you say the ground should be well prepared to do its best; in fact, the ground needs to be well prepared, no matter how you plant potatoes, to have them do *their* best.

SOME MORE EVIDENCE OF THE GOOD TIME
COMING.

WHAT DELTA COUNTY, COLORADO, HAS:

No jail.
No saloons.
A first-class creamery.
Fine schools and churches.
10,000 acres of land in orchard.
The finest vegetables ever seen.
Peach-trees which net \$20 each.
Cherry-trees which net \$15 each.
200,000 acres of land under ditch.
The largest and best cattle-ranges.
Pear-trees which run up to \$35 each.
The finest trout-fishing in the State.
25 carloads of honey to sell this year.
600 carloads of fruit to sell this year.
35 bushels of wheat per acre this year.
The finest hunting-grounds in the West.
Peaches 12 to 14 inches in circumference.
Potatoes weighing from 4 to 5 pounds each.
Apples which weigh from 20 to 24 ounces each.
Four out of six World's Fair medals for fruits.
The only canning-factory on the Western slope.
200,000 acres of the finest timber and grazing lands.
Coal veins—anthracite and bituminous—6 to 30 feet thick.
Apple-trees which net their owners from \$20 to \$30 a year.
Meadows which average five tons of alfalfa per acre each season.
Room for 1000 families who want good health, good schools, good churches, and good homes.
The most healthful climate in the world for those who have lung or throat troubles, catarrh, or asthma.
Four-fifths of all the first premiums offered on the various fruits at all fairs where she has been a competitor.
Write to the Delta County Board of Trade, Delta, Colo., for reduced rates and further particulars.

Do you want to know what the above has to do with the "good time coming"? Just this: These people have put at the very top the fact that they have no jail; and the next item explains the matter. Yes, they tell us about other things—25 carloads of honey to sell, etc. Yes, we have given a free advertisement, but they ought to have it. When the towns and the counties and all the United States shall get into a rivalry in regard to the inducements they have to get people to go in and live with them, and shall begin to mention, first and foremost, "no jails" and "no saloons," then we are on the march for the good time coming; and I do not know but I might add, also, that we start on the march toward "thy kingdom come, thy will be done on earth as it is in heaven."

MR. T. B. TERRY'S STAND ON THE TOBACCO
QUESTION.

We take pleasure in giving a place to the following clipping from the *Practical Farmer*, of Philadelphia:

NOT A TOBACCO MAN.

Good friends, you will have to excuse me from writing about tobacco, because I do not know anything

about it. I never saw a field of it growing. I have never been at an institute and heard its culture discussed during all my work in fifteen States. When a boy I signed a pledge to not raise, handle, nor use it in any form, and this pledge has been kept, except that I have bought some for wife to put around the edges of carpets to keep the moths out. That surely did not violate the spirit of my promise. Further, the institute men, as a rule, do not raise or use tobacco. No, there were seven of us in the Minnesota force before the holidays, and not one of them used it in any form. So you see I have had no opportunities to learn any thing about tobacco, except that I do not like rooms where the air is made impure by its smoke, or the floor filthy by its spitting. So, kindly allow me another subject.

May God be praised that the men who speak and teach at our farmers' institutes are, as a rule, clean men, even to the extent that they neither use nor encourage the use of tobacco, nor the raising of it.

Temperance.

STANDING BY ONE'S CONVICTIONS.

We clip the following from the *Sunday School Times*:

One boy, Harry Shepler, was in the signal service. Harry was standing one morning, by a sergeant, to report for duty at the canteen. He refused to do so, and the sergeant threatened to report him to the officer of the day. "All right," said Shepler, "go ahead. I did not enlist to be a bar-tender, but a soldier, and I will not report at the canteen." He was duly reported to the major, who sent for him. Shepler went with trembling knees, but with a steady heart, for he knew he was right. When he came before the major, that officer said to him:

"Are you the young man who disobeyed orders this morning?"

"Yes, sir; I am."

"Why did you do it?"

"Simply because I do not believe it is right to do what I was asked to do. I enlisted to be a soldier, and not a bar-tender."

The major arose quickly from his stool, and, extending his hand, said:

"Shepler, you are the kind of man we want. I am glad to see a man who has the courage of his convictions. You are not obliged to report at the canteen. Go back to your tent."

In a personal letter to the writer, Shepler, in referring to this incident, gave as the reason for his ability to stand firm, the fact that he would not dishonor his mother, nor the Sunday-school which had taken such an interest in him while he was a soldier.

The above illustrates something that often comes up; and I wish to say that, in all my experience in business matters, I have never known a young man to be the loser by refusing to do that which his conscience told him was wrong. Of course, there needs to be an enlightened conscience, and in some matters it would be very wise indeed for the young man to consult his pastor or some good Christian man a little older than himself. It is not only the boys who make blunders by being *afraid* to do right, but men who hold official positions the world over are afraid to do their duty. In almost every town in Ohio the mayors and marshals seem to have an idea that they will lose their influence with the people if they enforce the law, especially when it happens to hit somebody who stands well in community. But they are making a mistake. In fact, things have come to such a pass just now that the world is *hungering* and *thirsting* for men who are not afraid

to make the law a "terror to evil-doers," as the Bible says it should be. In a town near us, half a dozen liquor-sellers were fined, and given a term in jail. Among them was the proprietor of the leading hotel of the town. A great many people seemed to think the judge should either let him off on account of his position or else "let him down easy." And they even suggested to the judge that they hoped he would consider the landlord's standing and his family, and his position in town, etc. But the judge was not of that sort. He gave the landlord of the big hotel the same kind of "medicine" he did all the rest. Of course, the whisky men are all down on him; but all good people rejoice to find a man who did not hesitate to rebuke sin, when found even in high places; and this judge has all at once become exceedingly popular with the people of his district, simply because he showed the world he was not *afraid* to be impartial and *do right*.

THE LIQUOR PROBLEM; SOME ENCOURAGING WORDS FROM OUR OLD FRIEND L. C. ROOT.

I am always pleased with the attitude of GLEANINGS with reference to the drink curse. During all of its history it has taken radical grounds on the right side of the question. That was a large straw thrown in by Dr. Miller, p. 137 and the editorial comment brings encouragement to those who have to meet the discouragements which must be met by those who are interested in the work.

Just at present we are much interested here in Stamford, in the organized work which is being done through the local State and National Alliance work. I have been looking for some reference to the work in the Home papers. Truly it is a home topic.

Stamford, Conn.

L. C. ROOT.

It gives us encouragement to know that such a good substantial man as the writer above is right in the harness working with us. Friend Root incloses in his letter a little tract about the Prohibition Alliance. This tract gives us a lot of facts in regard to this organization, and can be had by sending 5 cts. to Oliver W. Stewart, 1518 Manhattan Building, Chicago.

1902 ITALIAN QUEENS.

From imported and home-bred mothers, by up-to-date methods. Tested, \$2.00. Untested, \$1.00; six, \$5.00; twelve, \$9.00. Full colony, \$6.00; three-frame, \$2.00; two-frame, \$1.50; add the price of queen. Discount on large orders.

Write for circular.

Rufus Christian, : Meldrim, Georgia.

Farm for Sale in the Grand Traverse Region. I offer for sale my farm of 87 acres - 65 cleared, 18 in orchard; plenty of water on the place, and a house and barn both close to the water. Will take \$1200 cash, or \$1400, half down and the rest on time. Is 7 miles from Traverse City, right on the bay; part is hilly and part is nice and level. Is within $\frac{3}{4}$ mile of A. I. Root's "Cabin in the woods." MRS. ANNA HEIMFOORTH, Bingham, Mich.

BEAUTIFUL SHELLS and curios from Florida. Collections of 30 varieties, named; postpaid, \$1.00. WM. S. HANSON, Ft. Myers, Florida.

QUEENS AND NUCLEI. - Untested queens, either 3 or 5 banded, 75c; 6 for \$4.25. Tested, \$1.00 and up. Nucleus, including untested queen, 2-fr., \$2.50; 3-fr., \$3.25; 4-fr., \$3.75. CHAS. H. THIES, Steeleville, Ill.



A Warranted Red-clover Queen, 30 cts.

An Offer for New
Subscribers.

We want to add a lot of new readers to our WEEKLY AMERICAN BEE JOURNAL list. For that reason we are making those who are not now reading our journal regularly, this liberal offer: Send us \$1.30 and we will mail you the Bee Journal for a whole year, and also one of our WARRANTED LONG-TONGUED RED-CLOVER QUEENS—untested Italian.

We have arranged with one of the oldest and best queen-breeders (having many years' experience) to rear queens for us this season. His bees average quite a good deal the longest tongues of any yet measured. The breeder he will use is direct from Italy, having imported her himself. Her worker-bees are large, somewhat leather-colored, very gentle, and scarcely requiring veil or smoke. They stored red-clover honey last season. All queens guaranteed to arrive in good condition, and all will be clipped unless otherwise ordered. They will be mailed in rotation, beginning about June 1st, so "first come, first served."

Headquarters in Chicago for Root's
Bee-supplies at Root's Prices. . . .

A free catalog and a sample of the American
Bee Journal on request.

George W. York & Co., Chicago, Ill.
144-146 Erie Street.

A QUEEN FREE.

Our stock is the very best that money and experience can procure. Just give our stock a trial and be convinced. We will give one warranted queen free in July for every order for one dozen queens before May 1, in order to have you try our stock. Prices: Untested, each, \$1.00; 6 for \$5.00; 12 for \$9.00. Select tested, \$2.50. Tested, \$1.25. Two-frame nucleus and warranted queen, \$3.00; three-frame nucleus and queen, \$3.50. Send for our catalog of bee-keepers' supplies and our price list of Italian queens and nucleus colonies, with description of our strain of bees.

PRESTON STORE & PRODUCE CO.,
Dority, Preston Co., W. Va.

10 CENTS

That's all it costs to get acquainted with the

Rocky Mountain Bee Journal.

We want to send it on trial to every reader of *Gleanings* Three Months for 10 cts. This vigorous young monthly has just entered its second year on a paying basis, and has become the recognized mouthpiece of the bee-keepers of the great Rocky Mountain alfalfa regions. Address

The Rocky Mountain Bee Journal,
Box 611, Boulder, Colorado.

To make cows pay, use Sharples Cream Separators.
Book "Business Dairying" & cat. 288 free. W. Chester, Pa.

Queens!

Buy them of H. G. Quirin, the largest queen-breeder in the North. The A. I. Root Co. tells us our stock is extra fine. Editor York, of the *American Bee Journal*, says he has good reports from our stock from time to time, while J. L. Gandy, of Humboldt, Neb., has secured over 400 lbs. of honey (mostly comb) from single colonies containing our queens. We have files of testimonials similar to the above.

Our breeders originated from the highest-priced long-tongued red-clover queens in the United States.

Fine queens, promptness, and square dealing have built up our present business, which was established in 1888.

Price of Golden and Leather-colored Queens Before July First.

	1	6	12
Selected Warranted.....	\$1 00	\$5 00	\$ 9 50
Tested	1 50	8 00	15 00
Selected Tested.....	2 00	10 50	
Extra Selected Tested—the best that money can buy	4 00		

We guarantee safe arrival to any State, continental island, or any European country. Can fill all orders promptly, as we expect to keep three to five hundred queens on hand ahead of orders. Special price on 50 or 100. Circular free. Send all orders to

Quirin the Queen-breeder,

Post and Money-order Office, Parkertown, Ohio.

Listen, Bee-keepers! The Lone Star Apiarist

A new bee-journal in the great Southwest, the Texas bee-keepers' paradise.

It will tell you of more glorious fields in the counties south of Uvalde, superior to and more abundant in honey-yielding flora, promising to be one of the greatest honey-producing sections in the world. With flowing wells, and the planting of fields of alfalfa in addition to the fine natural resources there already. Its editor will tell about his extended trip through this wonderful land.

Subscribe now, \$1 a year. The *Apiarist* is not only for the South, but for all America and foreign countries too. Our company has purchased the *Southland Queen*, and now we have the only bee-journal in the South.

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Louis Scholl, Editor.

Floresville, Texas.

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Everything Used by Bee-keepers.

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

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Nicollet Island Power Building, Minneapolis, Minn.

Advanced Bee Culture

Is a book of nearly 100 pages (the size of the Review) that I wrote and published in 1891; and I will tell you how I gathered the information that it contains.

For 15 years I was a practical bee-keeper, producing tons of both comb and extracted honey; rearing and selling thousands of queens, reading all of the bee books and journals, attending conventions and fairs, visiting bee-keepers, etc., etc. Then I began publishing the Review, and, for several years, each issue was devoted to the discussion of some special topic, the best bee-keepers of the country giving their views and experience. **ADVANCED BEE CULTURE** is really the summing up of these first few years of special-topic numbers of the Review; that is, from a most careful examination of the views of the most progressive men, and a thorough consideration of the same in the light of my experience as a bee-keeper, I have described in plain and simple language what I believe to be the most advanced methods of managing an apiary, for *profit*, from the beginning of the season through the entire year.

A new and revised edition, which includes the improvements of the past ten years, will be out June 1st. It will be as handsome a little book as ever was printed. The paper is heavy extra machine-finished white book, and there will be several colored plates printed on heavy enameled paper. For instance, the one showing a comb badly affected with foul brood will be printed in almost the exact color of an old comb. The cover will be enameled azure, printed in three colors.

Price of the book, 50 cts. The Review for 1902, and the book for only \$1.25. You can send in your order now, and the back numbers of the Review for this year will be sent at once, and, as soon as the book is out, a copy will be mailed you.

W. Z. Hutchinson, Flint, Michigan.

Business Bees!

Are the kind you want for honey. We have them in our select five-band strain. J. F. Aitkins, Reno, Nev., has been buying several dozen queens a year—last year 180; have his order for 100 in April. F. L. Craycraft, Havana, Cuba, bought about 200 in fall of 1900; also 100 last April; has placed his order for 100. These men are large honey-producers. They know what they are about. We are better prepared than ever to handle orders. Prices: Untested queens, \$1.00; dozen, \$9.00; after May 1st, \$8.00; tested, \$1.50; select, \$2.00. Send for circular. J. B. Case, Port Orange, Fla.

VANDE VORD rears Golden queens from the best honey strains; untested (from an extra choice Doolittle breeder) \$1.00, or 3 for \$2.25; tested, \$1.25 each. Geo. J. Vande Vord, Daytona, Fla.

PAGE & LYON, New London, Wisconsin.

MANUFACTURERS OF
AND DEALERS IN . . .

BEE-KEEPERS' SUPPLIES. . . .

Send for Our Free New Illustrated
Catalog and Price List.

TAR HEEL APIARIES.

Abbott L. Swinson, Queen-specialist in Charge. Orders filled now. For nuclei, 75c per L, frame—add price of queen. Bees, \$1.00 per lb. Warranted queens, \$1.00 each; \$10.00 per dozen. Tested, \$1.50. Breeders, \$5.00. We have 300 colonies of best American albino Italians and Adel bees. These bees have no superiors in the long-tongue or any others.

SWINSON & BOARDMAN, Box 358, Macon, Ga.

MICHIGAN

HEADQUARTERS FOR

G. B. Lewis Co.'s Bee-keepers' Supplies, Dadant's Foundation.

We have the largest stock of supplies in the State. Can ship on one day's notice. Send for our 48-page illustrated catalog and give us a trial order.

L. C. Woodman, Grand Rapids, Mich.

HONEY QUEENS FROM TEXAS.

I can furnish queens of 6 different races, all bred in their purity in separate yards from 6 to 25 miles apart. Untested queens, 75 cts. to \$1.00 each. Tested queens of either race, \$1.50 to \$3.00 each. Breeders, \$3.50 to \$5 each. Bees by the pound, and 1, 2, and 3 frame nuclei a specialty. Prices cheap. Quoted on application. Price list free. Will Atchley, Box 79, Beeville, Bee Co., Tex.

YES, SIR!

The MUTH'S SPECIAL Dovetail hive is a CRACKERJACK. COVER and BOTTOM are absolutely warp-proof. We know because we are practical. Our illustrated catalog explains it all. You can have one by asking. Not a hive left over from last season. We sell the finest supplies at manufacturer's prices.

STANDARD BRED QUEENS. None better than our Buckeye Strain of 3-banders and Muth's Strain Golden Italians. 75c each; 6 for \$4.00. Safe arrival guaranteed.

THE FRED W. MUTH CO.,

FRONT AND WALNUT.

CINCINNATI, OHIO.

Root's Bee-supplies

for the South Atlantic
States at Root's Prices.

**Quick Shipments and
Low Freight Rates.**

We call your attention to our one-horse Winner Wagon, Star Forcefeed Wheelbarrow Clover-seeder, Pea-threshers, and the Buffalo Pitts Harrows.

We also carry a full line of the most approved Farm Implements, etc. Send for catalog

Rawlings Implement Co.,

209 South Charles Street,
Baltimore, - - - Maryland.

DON'T BUY SUPPLIES!

Until you see our 42d annual catalog. A full line of hives and fixtures best adapted to our New England Climate. Also best brands of COMB FOUNDATION AND SECTION BOXES. We have also made arrangements to keep a general stock of

**THE A. I. ROOT COMPANY'S
GOODS AT THEIR PRICES!**

Parties desiring these goods can get them of us, and SAVE FREIGHT CHARGES. Bees, queens, and nucleus colonies from the VERY BEST STRAINS in America. A 40-page illustrated catalog sent free.

W. W. Cary & Son,

LYONSVILLE, MASS.

Sweet-Potato Plants.

Jersey Yellow, Big Stem, Jersey Red, Vineland Bush, and other kinds. Write for price list.
F. S. Newcomb, Vineland, N. J.

LABELS

When you buy labels why don't you get the kind that can be used over and over again? An absolute guarantee that these EVERLASTING METAL LABELS are just as represented, or money refunded. Price, plain labels, 40c per 100; \$2.00 per 1000, including marker. Address **W. G. YOUNG,**
323 Brown St., Dayton, O.
Marked labels, samples and prices sent on application.

NONE BUT THE BEST QUEENS ARE GOOD ENOUGH FOR ANY ONE.

No bee-keeper wants to give hive room to inferior bees. The best queens fill their hives with brood. The best bees fill their supers with honey. Every bee-keeper knows this, but does not know that *our strain* of Italians are in the lead. Try them. You will not be disappointed. Choice tested queens, \$1.00 each. Untested, 75c; \$8.00 per doz. Send for price list.
J. W. K. SHAW & CO., Loreauville, La.

POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts, if you mention Gleanings (reg. price, 50 cts).
Inland Poultry Journal, Indianapolis, Indiana.



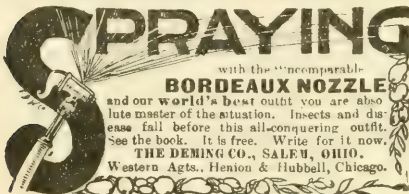
THE SPRAMOTOR
was awarded the Gold Medal at the Pan American Exposition. It has been adopted by the Russian, Canadian, Belgian and Australian Governments, and is in use at Experimental Colleges in New York, New Jersey, Delaware, Ohio, Illinois, Iowa, Ontario, Manitoba, Quebec, Nova Scotia, British Columbia, and awarded first place over eleven others in actual trial by the British Government. An 84 page copyrighted treatise on diseases affecting Fruit Trees mailed free.
Spramotor Co. Buffalo, N.Y. London, Can.

BETTER THAN SPRAYING.

Don't lug barrels of water around when spraying. Use the poison direct. Our

Common Sense Dust Sprayer

and Insect Extirminator is a most ingenious device that is rapidly supplanting the old methods. It blows the finely powdered dust into every nook and crevice. Reaches the bottom as well as the tops of leaves. Destroys insect life on plants, vines, shrubs and trees. Just as effective for vermin on poultry and pigs. More rapid than spraying. Descriptive circulars and testimonials free.
HILLIS DUST SPRAYER CO., Box 17, ST. JOHNS, MO.



JUST AS NATURAL as the old hen and a good deal more reliable. Doesn't break its eggs or make its chicks lousy. Doesn't stay off the nest and allow the eggs to chill but hatches every egg that can be hatched. **THE PETALUMA INCUBATOR**

Is absolutely perfect as to incubator essentials—proper application and distribution of heat and moisture, regulation and ventilation. For \$4 to \$24 eggs. We Pay Freight anywhere in U. S. Catalog free.
PETALUMA INCUBATOR CO.
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WE ONLY CLAIM

for PAGE FENCE that it is more practical and economical and that it lasts the longest.

Page Woven Wire Fence Co., Box S, Adrian, Michigan.

Fruit Packages of All Kinds.

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BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.

BELGIAN HARES!

With every hare sold goes a full pedigree, register number, and score-card, scored by an official judge. Does will be bred to one of our famous high-scoring bucks free. Write for book. Mer. of The A. I. Root Co.
J. B. MASON, MECHANIC FALLS, MAINE.



RIDER AGENTS WANTED

One in each town to ride and exhibit a sample 1902 Bicycle.

1902 Models, \$9 to \$15

'01 & '00 Models, high grade. \$7 to \$11

500 Second-hand Wheels

all makes and models, good as new, \$3 to \$8. Great Factory Clearing Sale at a half factory cost. We ship to anyone on approval and ten days trial without a cent in advance.

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distributing 1000 catalogues for us. Write at once for bargain list and our wonderful special offer to agents. Tires, equipment, sundries, all kinds, half regular prices.

MEAD CYCLE CO. CHICAGO, ILL.

Special Notice to Bee-keepers!

Root's Supplies

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F. H. Farmer, Boston, Mass.

182 Friend St., 1st Flight.

HONEY QUEENS!

Laws' Long-tongue Leather Queens.

Laws' Improved Golden Queens.

Laws' Holy Land Queens.

Laws' queens are the standard-bred queens of America. The largest honey-producers use them and praise them. Laws' queens go everywhere, and can furnish you a queen every month in the year. Four apiaries. Queens bred in their purity. Prices, October to April: Tested or untested, \$1.00 each; 6 for \$5.00. Breeders, none better, \$3.00 each. Address

W. H. Laws, Beeville, Texas.

1200 FERRETS. All sizes; some trained; first-class stock. New price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**

Angora Goats

are handsome, hardy, profitable. Prize stock; low price; circular. **ED. W. COLE & Co., Kenton, O.**

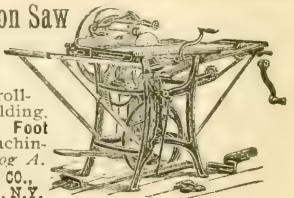
RUBBER STAMPS. Send us 25 cts. for YEAR'S sub to our 16-p. monthly journal and we will mail you FREE as a premium a two-line Rubber Stamp, or two one-line Stamps, to print any wording you want.

THE FARM AND POULTRY NEWS, Middlesboro, Ky.

Union Combination Saw

For Ripping, Cross-cutting, Rabbing, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line Foot and Hand Power machinery. Send for catalog A.

SENECA FALLS MFG. CO.,
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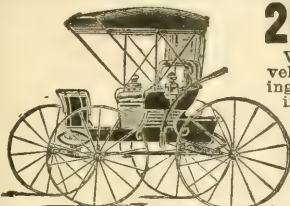
Split Hickory Vehicles

are made of first grade, second growth hickory. Split—not sawed—and they will outwear any vehicle on the market. We know this to be a fact and we will send them anywhere

On 30 Days' Free Trial.

Take the job from the depot, run it a month and if you are not fully satisfied it is the greatest bargain you ever heard of, send it back without paying us one cent. Send for free catalogue showing our full line of vehicles and harness.

OHIO CARRIAGE MFG. CO.,
Station 27, Cincinnati Ohio.



No. 391 Buggy. Price, \$59.00. As good as sells for \$25.00 more.

29 YEARS SELLING DIRECT.

We are the largest manufacturers of vehicles and harness in the world selling to consumers, and we have been doing business in this way for 29 years.

WE HAVE NO AGENTS

but ship anywhere for examination guaranteeing safe delivery. You are out nothing if not satisfied. We make 135 styles of vehicles and 65 styles of harness. Our prices represent the cost of material and making, plus one profit. Our large free catalogue shows complete line. Send for it.



No. 740 Open Stanhope. Has 74 inch Kelly rubber tires. Price, \$82. As good as sells for \$50 more.

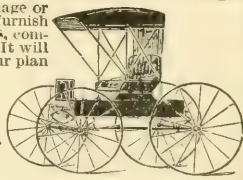
Elkhart Carriage & Harness Manufacturing Co., Elkhart, Ind.

Free Carriage Guide

No matter when, where or how you buy a carriage or harness, our **FREE** illustrated catalogue will furnish you with the **LOWEST FACTORY PRICES**, complete descriptions and accurate illustrations. It will guide you in buying right. It also explains our plan of selling direct.

A Plan that Fully Protects Every Buyer Against Loss or Dissatisfaction.
Factory and General Office, Columbus, Ohio.
Western Office and Distributing House, St. Louis, Mo.
The Columbus Carriage & Harness Co.

Write to the nearest office { St. Louis.
Columbus.



No. 3034 Buggy.

Built for Long Service

FROM THREE FACTORIES

We ship direct to the consumer. We make the most reliable line of vehicles, harness, etc., to be found anywhere and sell at the lowest wholesale prices.

We Handle No Low-Grade Work.

Strong, durable material and good honest workmanship make our vehicles and harness outlast two of the ordinary kind.

Write at Once

for our guaranteed freight charges to your station on any vehicle. Carts from \$11.00 to \$38.75; Road Wagons from \$28.90 to \$105.00; Buggies from \$36 to \$82.45; Surreys from \$52.20 to \$120.12; Spring Wagons from \$37.50 to \$112.50; Farm Wagons from \$91.55 to \$165.65; Single Harness from \$14.80 to \$29.20; Farm harness from \$12.50 to \$39.00.

WE SEND FREE new catalog ever issued. Send for it. **CASH BUYERS' UNION, Dept. E-845, CHICAGO.**



Wagon World Awheel.



Half a million of these steel wheels have been sent out on our own wagons and to fit other wagons. It is the wheel that determines the life of any wagon, and this is the longest lived wheel made. Do you want a low down Handy Wagon to use about the place? We will fit out your old wagon with **Electric Wheels** of any size and any shape tire, straight or staggered spokes. No cracked hubs, no

loose spokes, no rotten fellows, no resetting. Write for the big new catalogue. It is free.

Electric Wheel Co., Box 95, Quincy, Ills.

!! WHITE LEGHORNS !!

Single comb; stock large and fine; Satisfaction guaranteed. Pekin ducks. Eggs, \$1.50 per 13. Address **W. H. GIFFORD, 151 Franklin St., Auburn, N. Y.**

White Wyandottes!

Bred from Duston's best. Stock and eggs for sale in season. Satisfaction guaranteed.

J. F. MOORE, : TIFFIN, OHIO.



A NEW WIRE-IMBEDDING OUTFIT.

We have just gotten out a new wire-imbedding outfit that makes use of six dry cells. It is connected up with a multiple-point switch in such a way that a power of 2, 3, 4, 5, and 6 cells can be utilized according to the strength of the battery as a whole. This outfit is in every way superior to the one we have been sending out. It makes use of no liquids; there are no acids to corrode the fingers, and the whole thing is so simply arranged that any one can make it work. The price of the new outfit is \$3.00 instead of \$2.50 for the old one.

COME FOUNDATION ADVANCED

The continued high price of beeswax makes it necessary to advance the price of comb foundation. An advance of 3 cents a pound was made April 22. This advance is concurred in by Chas. Dadant & Son, Gus Dittmer, G. B. Lewis Co., W. T. Falconer Mfg. Co., and the principal dealers and agents. We are paying, and have been for some time, 3 cents per pound more for wax than we paid last fall when the present list price was established. We had hoped that, with the opening of spring, supplies would be more plentiful and prices be easier. From present indications we do not think prices will advance any further, yet the demand for wax is such that the price holds up to its present high level. The advance, which should have been made a month ago, is imperative. The revised list price is as follows, and the wholesale prices are also advanced 3 cents per pound.

NAME OF GRADE.	Size, and sheets per pound.	In lots of—			
		1 lb	5	10	25
Medium brood.....	7½x16½ 7 to 8	53	51	49	48
Light brood.....	7½x16½ 9 to 10	55	53	51	50
Thin super.....	3½x15½ 28	60	58	56	55
Extra thin.....	3½x15½ 32	63	61	59	58

BUSINESS BOOMING.

The demand for supplies this year in many directions is quite phenomenal, and indicates a prosperous condition with bright prospects. The demand for goods in all lines is very heavy, and prices of materials of almost every kind are advancing. Food supplies of nearly every kind are well up in price, and labor is better paid than ever before. In fact, money, the medium of exchange and the measure of values, is becoming cheaper when measured by the general average of commodities. During the past 4½ months we have made 85 carload shipments, and are still fifteen cars behind; and if we were in shape to take care of it there are other cars which we could ship which are now being turned away because we are not prepared to ship promptly. A number of our dealers are sold out of many items for some days and sometimes weeks before their next car reaches them. The forehanded people buy their supplies in the fall and winter, get them ready for the bees at their leisure, and are ready for business when the season arrives. An experience like the present should teach a much larger number the wisdom of this policy, and find them among these forehanded people in the years to come.

Several of our dealers, especially the managers of our branch houses, are usually able to handle their business with very little help, and, in a busy season like the present one, find it difficult to take care of the orders received, and their correspondence too; and, having no trained help, in many cases they are considerably burdened by additional correspondence in the nature of inquiries as to when goods will be shipped, etc. We trust, therefore, our friends will avoid writing regarding orders any more than necessary, provided you have received an acknowledgment of the order. If you must write about it, kindly state briefly what date the order was sent and the amount of money, if any, sent, and give the order number, provided you have received notice stating what it is. Mr. Salisbury, of our Syracuse branch, states that he is about a week or ten days behind on some of his orders, although others are going out with almost no delay, and the same situation prevails in other places, though we hope very soon to be fully up with our orders at Medina and our branches with the exception of carload lots.

BEES AND QUEENS.

In connection with and directly adjoining our large manufacturing plant we have an apiary of 600 colonies; and this is further supplemented by an out-yard of 150 more. Nearly all of these 750 are devoted to the rearing of high-class honey queens or queens for business. In charge of this department we have a queen-breeder of some 30 years' experience, careful and competent, and one who uses the latest and best methods for producing vigorous healthy stock. None but honey queens are used for breeders (usually imported) — queens whose progeny have excelled every thing else in the yard. Some of them are from our celebrated imported red-clover mother, the bees of which will excel any thing else in the yard during the time that red clover is in bloom. Then we have a breeder whose bees stored 160 lbs. of surplus from clover and basswood in a yard where there are already 650 colonies. A colony that can store as much honey as that in a locality so greatly overstocked is something remarkable, and hence the queen has been set apart as a breeder.

On account of the intrinsic merit of breeding stock and the pairs we take in rearing our queens, we are compelled (to prevent being swamped with orders) to charge a slight advance over ruling prices.

PRICES OF RED-CLOVER AND HONEY QUEENS REARED IN THE ROOT CO.'S APIARIES, AT MEDINA, O.

Untested queen.....	\$1 00
Select untested queen.....	1 25
Tested queen.....	2 00
Select tested queen.....	3 00
Breeding queen.....	5 00
Select breeding queens.....	7 50
Extra select breeding queens, 1 year old.....	10 00

Be sure to specify whether you desire a "red-clover" or a "honey" queen. The first-mentioned stock is bred for red clover; the last-named, or honey queens, show up well during an ordinary honey-flow from clover and basswood. We can not furnish these queens before May 15 (untested before June 1st) nor later than Nov. 15th. We are booking orders, and they will be filled in their season in rotation.

COMMON ITALIAN QUEENS.

For those who desire to get pure Italian stock at a moderate price we are prepared to furnish queens direct from our breeders in the South, or from our own yards. These queens may be just as good as our higher-priced stock. Some of our Southern breeders use our breeding-queens, and others use some of their own choice breeders.

Untested queens.....	\$.75
Select untested queens.....	1 00
Tested queens.....	1 50
Select tested queens.....	2 50

If untested queens are ordered before May 15th the price will be 25 cents extra.

PRICES OF NUCLEI.

One-frame nucleus, without queen.....	\$2 00
Two-frame nucleus, without queen.....	3 00
Three-frame nucleus, without queen.....	3 50
One colony of bees in 8 frame Dovetail ed hive, without queen.....	7 50

We can supply with the nuclei any of the queens mentioned in the table of prices of queens. When one buys an extra select queen or any high-priced queen he would do well to have her come in a nucleus. This will insure safe arrival, and do away with the hazard of introducing.

Kind Words from our Customers.

What seeds we have had of you have been extra fine and very large packets for five cents. I never made a success of getting ripe tomatoes until we tried some of your Ignomus seed. Quality of fruit the best I ever saw.
H. E. CAMPBELL.

Derby, Vt., Feb. 14.

I like GLEANINGS very much. It is the right kind of a journal for a Christian family table, it being opposed to the filthy tobacco habit, and is anti-saloon; and it advocates good Christian principles and morals. It is also a great help in the bee business. God bless the editors and contributors to GLEANINGS.

Montee, Wis.

HERMAN L. GLOEGE.

SOMETHING MORE ABOUT THE MUSKOKA REGION OF CANADA.

Mr. Root.—Speaking of the outing in the back-woods, we think it might interest you to know what we have been doing since you were with us in Muskoka. You will perhaps remember the little farmhouse away back from our camp, where you got the bread, and will recollect the lake straight out from the house, where you found the children alone. Well, in that lake we discovered, after you left us, a group of beautiful islands, four in all, about 12 or 15 acres. We made inquiries and found out that they were still government property. As soon as we returned to Toronto we investigated, and made a purchase of the lot from the government, for \$5.00 per acre. We talked it up, and others became interested, mostly relatives, and members of our church here. Six families united, and early last spring we had the lumber hauled in and quite a nice house built. It cost us about \$90 apiece, land and all. Our building is about 30x16 feet, two-story, built of dressed siding, painted yellow, trimmed with red, and with shingles stained green. It makes a very pretty appearance from the water, surrounded as it is by beautiful woods. Some of the trees that have been cut off the island are large enough to be made into lumber, and we expect to get several thousand feet of boards from them during the winter, and next year we purpose building a large veranda around the house. The situation is very beautiful. We get berries in abundance, and the fishing is also good. We get beautiful black bass, some as large as three or four pounds. There is also good lunge fishing in the lake.

Our lake is connected by small streams with a whole chain of other lakes to which we made very pleasant little excursions. In some cases the streams are just filled with thousands upon thousands of sweet scented water lilies, while the ever-changing scenery is very beautiful. Generally the land is rough and rocky, similar to what you saw on your trip. The water, as you know, is very soft, and suitable for bathing, but rather too warm for drinking. We were fortunate, however, in discovering on the mainland, just across from our islands, a beautiful spring where we get splendid water, soft and cold. We dug a hole and sank a barrel into the sand. I thought of you when I was helping to fix it, knowing how much you are interested in such things. We found there were quite a few settlers on the lake from whom we could get, at very reasonable prices, beautiful potatoes, and all other garden vegetables, milk, butter, eggs, etc. My wife and children were there about eight weeks. I took them in over the same course we traveled when you were with us; but we have another way of getting in from the railway station, by a very good road. The settlers, for a reasonable amount, bring us and our luggage in to the shore of the lake. We have found it a great benefit to us, the children especially. It was a sight not soon to be forgotten, to see them all playing in the nice clean sand, and bathing in the warm soft water. It was worth all it cost us to see the way they enjoyed themselves, and they are much better in health. It made us think of the poor little children who are shut up in the large cities, who never have such pleasure, and we often wished we could share it with them.

By a number uniting in this way we were able to have all the advantages and benefits of a summer outing, at a very small cost. After reckoning every thing up we found that it was cheaper living there than it would have been had we spent the summer at home in Toronto. Probably no one family connected with the club (which, by the way, we call the "Otiosus Club") would have been able to go to the expense alone; but by uniting in this way we all had the benefit and advantages of the company, which made it more pleasant. At one time we had about 25 on the island. Of course, some of them slept in tents. You have been writing lately on the subject of "paths." I may say that one of our greatest pleasures while in Muskoka was making paths from one point to another on our islands. Sometimes we were able to get all the young people, children and all, interested in it, and, oh, my! how they would work! and how they would eat afterward! What other pleasures are there which can compare with the pleasures we get from nature?

We hope some time we may have the pleasure of showing you the advantages and beauties of our summer home. I suppose you know that "Otiosus" is taken from a Latin word "otium," which means rest, recreation, leisure, etc., and our experience last summer proves that it has been rightly named.

Toronto, Can., Nov. 21.

E. GRAINGER.

CONVENTION NOTICE.

The Eastern part of the Northern Illinois Bee-keepers' Association will hold their spring meeting at the residence of C. J. Cummings, 2½ miles northeast of Rockford, Ill., on Tuesday, May 20, 1902. All interested in bees are invited to attend. R. KENNEDY, Sec. Rockford, Ill., Rural Route No. 5.

Fertilizing-boxes on Trial.

Last season we reared and sold a large number of queens, all of which were mated from Swarthmore fertilizing-boxes attached to 2 and 3 frame nucleus hives of standard size, thus securing 6 to 10 fertile queens each from colonies that would otherwise have given but one to the mating. We will gladly send a set of boxes to ten reliable bee-keepers for trial and approval; to be paid for when satisfied of success, or returned if found wanting—full directions given in circular.

The Swarthmore Ap'aries, Swarthmore, Pa.

Headquarters for the Albino Bee.

The Best in the World.

If you are looking for the bees that gather the most honey, and are the gentlest of all bees to handle, buy the Albino. I can also furnish Italians, but orders stand fifty to one in favor of the Albino. Select tested Albino queen before June, for breeding, \$4.00; tested, \$2.50; untested, \$1.00; Italians, \$1.00. I have located an apiary near Rocky Ridge, Md., and most of my queens will be shipped from there. Other supplies will be furnished from Hagerstown, Maryland. Address me at Rocky Ridge, Md., for queens. S. Valentine.

Look Here!

Buy your bee-supplies where you can do the best. We handle the well-known Lewis Goods, and every thing else necessary for the bee-keepers. The Very Best Goods, The Very Best Service, The Very Best Shipping Facilities, Plenty of Room, Large Stock, Manufacturer's Prices. Write to us before buying elsewhere. Catalog free if you say where you saw this ad.

C. M. Scott & Co.,

1004 E. Washington St.,

Indianapolis, Ind.

Don't forget us when you want a queen. We guarantee ours.

TEXAS QUEENS!!



From the Lone Star Apiaries. G. F. Davidson & Son, prop's, have made great preparations for the coming season to accommodate their many customers with either Long-tongue, Imported St ck, or Golden Queens. They have bought out the queen-rearing business of O. P. Hyde & Son, Hutto, Texas, and by buying and increasing their

number of nuclei, they are better prepared than ever to cater to the trade of the bee-keeping public. One of Root's Long-tongue Breeders; Imported Stock direct from Italy; Goldens from leading queen-breeders. Fine breeders of each of the above have been added to their yards. Safe arrival and satisfaction guaranteed. Send for queen circular and price list. We are now prepared to fill orders for Cyprian and Carniolan queens. Good strains. Address

G. F. Davidson & Son, Box 190, Floresville, Texas.

QUEENS, QUEENS

Old Standbys.—The A. I. Root Co., to whom we have sold queens for many years, wrote us last May, thus: "Are you running low on queens? We hope not, as you seem to be our standbys. Send us 24 per week instead of 12, till further orders."

Beat Any Thing He ever Saw.—The Cyprian queens you sent me last year beat any thing I ever saw rearing brood and filling their hives with honey.—J. Nielson, Huntington, Utah, Sept. 4, 1901.

Is Great.—The nucleus you sent me last fall is great—the finest queen that ever crossed the plains. Please duplicate her this time. Mr. Jordan says the nucleus you sent him cast two fine swarms.—G. R. Warren, Fruitvale, Cal., May 12, 1901.

\$50 Queens.—My nice queen that you sent me, and I put in a hive with a handful of bees on the 6th day of last June, has now nearly filled her 30-lb. super for the third time. No man's \$50.00 bill could take her. Please send me another one like her as soon as possible, and keep a dozen ready for me like her for the 20th of April next, and I will make you a nice present.—M. Brown, Station A, Little Rock, Ark.

We breed Italians, Cyprians, Holylands, Carniolans, and Albinos, in separate yards, 5 to 20 miles apart. Prompt service. Safe arrival guaranteed. Bees by the pound, nucleus, full colony, or by the carload.

Prices: Tested, \$1.50 each; \$8.00 for six; \$15.00 per dozen. Untested, February, March, April, May, \$1.00 each; \$5.00 for six; \$9.00 per dozen. Fine breeders, \$5.00 each. Send for our catalog, free by mail; tells how to rear queens and how to keep bees for profit.

Agents for Dadant's Foundation and *Gleanings*. Premiums given. Don't fail to get our printed matter. It's ALL free. Bee-supplies of all kinds.

The Jennie Atchley Co., Beeville, Tex.

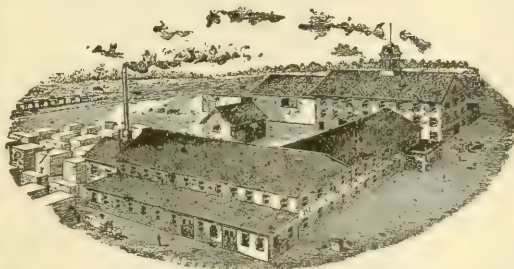
Now Ready!

Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,

Wetumpka, Elmore Co., Ala.



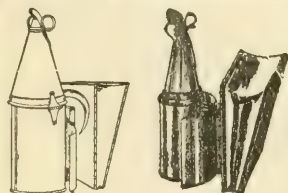
Kretchmer Mfg. Co., Box 60, Red Oak, Ia.

BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

— AGENCIES —

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Ia.
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

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Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 2.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 3.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

BUFFALO.—Demand for honey is very slow. Fancy white comb, 14@14½; A No. 1, 13½@14; No. 1, 12½@13; No. 2, 11@12; No. 3, 10@11; No. 1 Dark, 11@12; No. 2, 10@11. Extracted white, 6@6½; dark, 5@5½. Beeswax, 28@30. W. C. TOWNSEND, May 10. 84, 86 West Market St., Buffalo, N. Y.

CHICAGO.—The trade in honey of all kinds is light; especially is this true of comb; the little trade that exists is for the best grades. Basswood ranges from 14@15; that having more or less basswood, willow, or other white nectar. 13; off grades of white, 10@12; amber, 8@9. Extracted white, 5½@6; amber, 5@5½. Some lots of new extracted offered, but no sales have been made. Beeswax is very scarce, and can be sold upon arrival at 32. R. A. BURNETT & Co., May 8. 199 South Water St., Chicago, Ill.

SAN FRANCISCO. Comb honey, 10@12. Extracted, water-white, 5½@6½; light amber, 4@5½; dark, 4@5. Beeswax, 27½@30. E. H. SCHAEFFLE, April 27. Murphys, Calif.

ALBANY.—Honey receipts light with little demand; season about over; old stock about all cleaned out and will be in good shape for new crop. We quote white comb, 14@15; mixed comb, 13@14. Extracted white, 6@6½; mixed, 5½@6. Beeswax, 30@32. MACDOUGAL & Co., May 6. 375 Broadway, Albany, N. Y.

TORONTO.—A No. 1 comb, \$1.75@2.00; No. 1 comb, \$1.50; dark, \$1.00. Bulk honey, extracted, 8½@9. There is very little honey moving, and, although having been a very light yield, there is still a good deal in the hands of dealers who will not be able to hold their own. Honey seems to be used only up to a certain price, and when it gets beyond that it won't sell. This has been the case this year. Good prospects for a big crop this year are almost certain. The bees have wintered well, and the clover not injured by frost. In view of this, those who have honey are anxious to get rid of it even at a loss. M. MAYER & SON, Toronto, Ont., May 3.

PHILADELPHIA.—The present honey season is about over with us in a retail way, and so little call that there are not enough sales to fix a price. Car lots of western honey on track, 5½; and in a retail way from 6@8, according to quality. Beeswax, 30c. I am a producer of honey, and do not handle on commission. WM. A. SELSER, May 9. 10 Vine St., Philadelphia, Pa.

BOSTON.—Our honey market continues about the same as our last report, with a light demand and ample stock. Last quotations were as follows: Fancy, 15@16; A No. 1, 14@15; No. 1, 13@14; honey in glass-front cases about 1c less. California light amber, extracted, 7@7½; Florida honey in barrels, 6@6½. BLAKE, SCOTT & LEE, May 8. 31, 33 Commercial St., Boston, Mass.

CINCINNATI.—As the warm weather sets in, the demand for comb honey is as good as over. There are no settled prices; for whatever is left, prices are made to force sales. Extracted honey is in fair demand, and finds steady sales. Amber is sold in barrel lots for 5@5½; water-white alfalfa sells at 6@6½; white clover, 6½@7. Beeswax scarce, and brings 30@31. C. H. W. WEBER, May 8. 2146 Central Ave., Cincinnati, Ohio.

WANTED.—Comb and extracted honey. State price kind, and quantity. R. A. BURNETT & Co., 199 South Water St., Chicago, Ill.

WANTED.—Extracted honey, either large or small lots; parties having same to offer, send samples, and best prices delivered, Cincinnati, O. We pay cash on delivery. THE FRED W. MUTH CO., Front and Walnut Sts., Cincinnati, O.

WANTED.—Comb honey in Danzenbaker sections. We can use both white and amber. THE A. I. ROOT CO., Medina, Ohio.

FOR SALE.—Extracted honey, from alfalfa, at 7c per pound. Send for sample. D. S. JENKINS, Las Animas, Col.

FOR SALE.—Whitest alfalfa honey, \$9.00; tinted, \$7.80, per case of two 60-lb. cans, net. ARKANSAS VALLEY APIARIES, Las Animas, Col.

FOR SALE.—Clover and sweet-clover extracted honey at 7c, in kegs and cans. DR. C. L. PARKER, Sta. A, R. F. D., Syracuse, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHHEIM, 1318-1324 Union Avenue, Kansas City, Mo.

Victor's Strain of Italian Bees Awarded the Diploma as Being the Best Bees at the Pan-American.

BUREAU OF AWARDS.

PAN-AMERICAN EXPOSITION, }
BUFFALO, NEW YORK, U. S. A. }
February 12, 1902. }

Mr. H. O. Victor, Wharton, Texas.

Dear Sir:—I have the honor to advise you that a Diploma of Honorable Mention has been awarded to you for your exhibit of Italian bees at this Exposition.

Very respectfully, WM. I. BUCHANAN,
Director-General.

Orel L. Hershiser Bought of Me an Untested Queen. This is what He Says of Her Colony:

"They are very industrious, characteristically marked, and extremely gentle. It was a daily experience, and repeated many times daily, to go into the inclosure with interested visitors, at the Exposition, open the hive, full to overflowing with beautiful bees, the progeny of the queen you sent me, and handle them in the various manipulations of hunting out the queen; shaking the bees from the comb, as is done in extracting, showing the brood in all stages, etc., all without the use of a smoker or any thing else to quiet the bees, and I do not recollect that any one ever got a sting from any of them."

Of the bees I exhibited at the Pan-American, he says: "The nucleus you sent for exhibition and award was certainly very fine-looking bees, and, in my opinion, they deserve the award given them by the judges."

But Who is Mr. Hershiser?

See *Gleanings* of date of Feb'y 1, 1902, page 97. Send in your orders for queens, and in a short time, as Mr. Hershiser and hundreds of others are now doing, you, too, will be singing the praises of "Victor's Bees." Price lists on application.

I Am Filling Orders by Return Mail from This Superior Stock at Following Prices:

Untested queens: 1, \$1.00; 6, \$5.00. Select untested queens: 1, \$1.25; 6, \$6.00. Tested queens: 1, \$1.50; 6, \$8.00. Select tested queens: 1, \$2.00; 6, \$11.00. Breeders, \$3.00 to \$7.00. See circular for specifications.

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WANTED.—Comb honey in Danzenbaker sections in exchange for supplies, or will pay cash. We prefer large lots of white honey, but can use some amber in this size. **THE A. I. ROOF CO., Medina, Ohio.**

WANTED.—To sell Rocky Ford cantaloupe seed. Seed of these famous melons postpaid, 40 cts. per pound. Choice selected stock. **H. F. HAGEN, Rocky Ford, Colorado.**

WANTED.—To know who has 200 colonies of bees to sell cheap; also what young man would like to serve an apprenticeship with Quirin the queen-breeder. **H. G. QUTRIN, Parkertown, O.**

WANTED.—One dollar for 15 W. P. Rock eggs; \$5.00 for 50, or \$5.00 for 100; from 93 to 95 scoring birds; cockerels and pullets, \$1.00 each; 75 cts. for one Golden Italian queen, or \$8.00 per dozen—after August 1st, 50c each or \$5.00 per dozen. **GEO. W. COOK, Spring Hill, Kansas.**

WANTED.—Bee keepers to study our advertisement and testimonial of queens in April list GLEANINGS. **R. F. HOLTERMANN, Manager Bee Department, Bow Park Co., Limited, Brantford, Canada.**

WANTED.—Second-hand or knocked-down hives. Describe them, with price. Also want a man who knows how to handle bees a little. **W. L. COGSHALL, West Groton, N. Y.**

WANTED.—To exchange sails, spars, and rigging of 20-ft. boat, for small printing-press, foot circular saw, wheel hoe and seeder, bee fixtures, or any thing useful. **J. H. CHASE, 1364 N. Ave., Bridgeport, Ct.**

WANTED.—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid. **O. H. HYATT, Shenandoah, Ia.**

WANTED.—An offer for 150 good heavy-top brood-combs; Root size. **W. W. KULP, Pottstown, Pa.**

WANTED.—To sell 70 hives of bees, some nuclei, stands, and frames; good condition; many fixtures. Write quick. **CHAS. G. MILLER, Cuero, Tex.**

WANTED.—To sell from 40 to 50 Italian and hybrid colonies. **AUGUST NIGABOWER, 19 Center Street, Iliou, New York.**

WANTED.—Prices on comb and extracted honey, and sorghum. **L. R. BIDWELL, Watonga, O. T.**

WANTED.—A printing-press, or best cash offer for the following: 125 eight-frame dovetailed extracting supers, 5½ deep; 1000 closed-end frames for same; 175 eight-frame comb-honey supers, 17½ long inside by 4½ deep, with flat tins. All the supers are 19 inches long, outside measure, and are new goods in the flat; 25 covers for the above nailed and painted; 10 wood-zinc queen-excluders; 8 lbs. section foundation; 5 lbs. brood foundation; 1 Bingham uncapping-knife; 2 queen-traps; 1 queen-clipping device; 1 smoker. **E. W. BROWN, Morton Park, Cook Co., Ill.**

Gleanings in Bee Culture

[Established in 1873.]

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VOL. XXX.

MAY 15, 1902.

No. 10



IF I LIVE till next winter I think I'll try a few colonies, taking them out every day warm enough for them to fly and then returning after the flight. [Yes, do.—ED.]

MARCH 27, three days after the blooming of soft maple, my bees were taken out of cellar. The next three or four weeks were pretty bad; and if bees will stay contented after returning, it might have been better to have returned and left them in the cellar till April 21, when dandelions were in bloom. [Yes, I think so.—ED.]

ARABIAN HIVES are long, and it is almost impossible to drum bees out of them. M. Bourgeois, at Tunis, says in *Progres Apicole* that he gets them to swarm out in the following manner: He catches the young queens of a second swarm (in one case 53 in one swarm), cages them, and puts the cages in colonies he wishes to swarm. In two or three days the swarms issue.

ADRIAN GETAZ figures in *American Bee Journal* that a colony of normal size uses for its own support at least 200 pounds of honey in a year. If that be so, it makes it easier to understand how it is that, while one colony stores a surplus of 40 pounds, another beside it stores twice as much; for, as he explains, the better colony will not need to gather twice as much, but only a sixth more, one gathering 240 pounds and the other 280.

ADULTERATORS are having a bad time elsewhere as well as here. One Breitenstein at Stein, Switzerland, was selling Chilian honey as Swiss honey. The Bee-keepers' Association prosecuted him, and he was glad to get off by paying costs and making a signed paper for publication confessing the fraud, and promising not to do so again. [The adulterators in this country are not having nearly as bad a time as they ought to have. If bee-keepers will look to their State legislatures we can make

it much hotter for the mixers than we are able to do now.—ED.]

EDITOR DOOLITTLE says in *Progressive* that queens giving peaceable bees in the South are quite the opposite with him and further north. A queen returned to him from Wisconsin because her bees were insufferably cross was sent by him to the extreme South, and the report upon her workers was, "They are the most peaceable bees I ever saw." Now, is it possible that all queens sent from the South produce such vixens in the North?

FOR THE FIRST TIME I find a reason given why queens prefer new to old comb. *Le Progres Apicole* says it is because new combs are more easily warmed. But so are they more easily cooled; and the important thing is to have combs that will not allow the brood to become chilled on cool nights. Moreover, whatever may be true in France, in this locality old black combs are always preferred by the bees, either for brood or honey.

FORMALIN should have a fair trial for foul brood this year. If it kills spores in larvæ, sealed cells, and honey, it's a boon. [Can't you tell us, doctor, just how the European bee-keepers administer formalin to a colony of bees—the quantity of drug, etc.? It can be easily obtained in this country; but I should doubt very much whether it would kill the spores of foul brood. If they can resist a temperature of boiling water for an hour or two, the drug must be exceedingly powerful.—ED.]

IT'S POSSIBLE, Mr. Editor, that "one-sided board combs," mentioned p. 387, may be better than you think. The cells do not need to be any deeper than usual. Don't bees do nearly as well with separators in supers as without? and would not the proposed plan nearly double the number of separators? At any rate, it could be easily tried. [You just try putting a separator down between your extracting-combs, and see how well the bees will do in storing honey. Don't you recall how disinclined the bees are to go outside of the division-board and store honey in a comb that may

be left on the outside? In the case of a comb-honey super the separators are comparatively narrow. They are slotted at the top and bottom so as to reduce the width, in many instances; and now that the fence is so rapidly pushing its way forward, the separator or fence has transverse slots that allow the whole cluster to mingle together. Say—perhaps you can tell us with what success the one-sided combs are used in Germany. They were talked about at one time; but, if I am correct, there was nothing but talk outside of a few isolated experiments.—Ed.]

ADRIAN GETAZ says in *Amer. Bee Journal*, "a colony of bees of normal size consumes something like 200 pounds of honey every year, at least, and probably more." So if a colony gathers 240 pounds there's 40 surplus, and gathering 280 makes 80 surplus. So he says increase the gathering $\frac{1}{2}$ and you double the surplus. That makes it easier to understand how there can be so much difference in the surplus of two colonies of like appearance. [There is probably a great deal in what Mr. Getaz says; but is he not figuring pretty high on the amount of honey actually consumed for the whole year? D. A. Jones once had an apiary on a barren island in Georgian Bay, for rearing Holy Land bees. He had another for the rearing of Cyprians on another island. The only food these bees had was syrup that he gave them, as there was nothing on either island that they could get, except a little pollen, perhaps. I can not now remember the amount of syrup required per colony, but the figures were nothing like 200 pounds. He kept them at brood-rearing to their fullest capacity; and any one who is familiar with those Eastern races knows they rear brood to excess.

It would be interesting to know whether this 200 pounds of honey per year is an estimated figure or one obtained by taking account of syrup actually fed in a locality reasonably barren of natural flora.—Ed.]

THANKS for that editorial about Post check money, p. 370. I never fully understood it before. Why, it's immense. Without troubling to go to a bank, express office, or postoffice, you can at any time take a bill out of your pocket and write two names on it, and then it's ready to mail. In spite of the risk, hundreds of dollars in bank bills are sent through the mail now. That would take away the risk. [I hope, if you (and, in fact, all the readers of GLEANINGS) have not already done so, you will immediately write to your Senators and Representatives in Congress. It is not sufficient to wish devoutly to have Congress act on a certain desirable measure. It is our privilege and duty to sit down and write to our members of Congress to give this or that measure their support. Sometimes I think our people do not realize that this is a *representative* government, and that every one should have something to say about the laws that shall be made. Out-

side of abolishing the canteen at our army posts, I do not know of any national measure that interests me more than this Post check money. It would prevent the contracting of disease in perhaps thousands of cases; it will save life and property, because it will absolutely remove the temptation to rob the mail, either on the part of desperadoes that hold up a whole train, or postal clerks who are not strong enough to withstand temptation, because they know that many letters contain money that they fancy they can abstract and escape detection. Besides being a great convenience to the people and a saving of life, this is a moral measure that may be the means of saving some poor mother's son's soul.—Ed.]

CHANGING from frames 18×9 to the regular size I've had hundreds of frames and combs to transfer, and after trying strings and wires for fastening combs in frames I much prefer the wires. Cut the wire in proper lengths, lay three of them under a frame, one at the middle and one near each end; put your comb in the frame, then fasten the two ends of each wire together by twisting at a corner of the top-bar. The fine wires are easily broken at any time after the bees have fastened the comb in place, although they may do no harm if never removed. Of course that will work only when combs are in pretty large pieces. If pieces are quite small I'm not sure but it might pay to use the plan given on p. 364. The nails would make no trouble when uncapping, for they are left "projecting $\frac{1}{8}$ inch" so as to be drawn when the comb is fastened. [While a wire might, perhaps, be more convenient than a string, in the manner in which you use it, yet just think of the labor of driving little nails along the edges of the brood-frame, stringing wires up over them, pulling them off again, then afterward pulling out the nails! Your plan of using the wires is vastly better; but I can not help feeling that a string is better still, for I have used both. One summer I transferred 75 colonies, and as a general thing I used neither string nor wire. I just crowded in pieces of combs around the edges to wedge the comb into place. When that was not practicable I used one strand of string, going around the frame two or three times, and tying in a bow-knot. If I did not happen to think to go around and pull out the string the bees would save me that trouble and carry it out of the hive bit by bit. If I did think, all I had to do was to pull out the bow-knot and slowly draw out the string without removing a single frame.—Ed.]

THE *Rocky Mountain Bee Journal* says, "The wide-awake, reading specialist puts on the second super as soon as work has well begun in the first; a third is soon added, and then four and sometimes five." Replying in *Lone Star Apiarist*, L. E. Kerr says, speaking of tiering up supers, "In other than expert hands it is a most dangerous procedure, where honey is the

object," and "Usually it is not practicable to tier up more than three high." Perhaps each one is right for his own locality. While it might be dangerous for a beginner in this locality to tier up, it would very often be more dangerous not to tier up; and if I should be limited to three supers in a good season I'd lose honey. [A plan of tiering up that would be perfectly practicable in Colorado might not be so in other localities. When one tiers up to any great extent he must figure pretty closely on the duration of the honey-flow. If one has, say, three or four supers in various stages of completion, some half filled and some nearly filled, and the honey-flow suddenly stops, he is in a rather bad way. Obviously it would have been better for him to give the bees fewer supers, and made them complete what combs they had, rather than to start on a fresh batch, thus dividing their time and labor. But, very fortunately, in Colorado the bee-keeper, especially in alfalfa localities, can determine almost to a day when his honey-flow will be shut off. When alfalfa gets into bloom he knows when the mower will begin work, and he knows almost exactly when every head of alfalfa in his locality will be cut. He can, therefore, plan ahead and tier up as long as there are several days ahead of a good strong honey-flow. If he knows, for instance, there are just ten days more, he will probably put on no more supers, but compel the bees to finish up the work begun; and that finishing-up will take place just about as the honey stops. Nowhere in the world but in the alfalfa regions can one so exactly gauge the length of the honey-flow. As alfalfa is grown in Arizona, California, Utah, Idaho, and Colorado, as well as some other of the Western States, the bee-keeper in any of those localities can tier up much more excessively than we who are of the East or South.—Ed.]

I'M AFRAID, just a little, Mr. Editor, that you may swing too far on the side of cellar wintering. Notwithstanding my failure at outdoor wintering, I have a suspicion that, if I knew enough, I might succeed even in this windy region; and I also have a suspicion that bees wintered out are hardier. Why they should be hardier I don't know, unless it be on account of purer air and the chance to fly whenever it is warm enough. Yet if you can manage to have a constant supply of pure air in the cellar, and if it will do to take them out on a warm day and then return them, it is possible they may be as hardy as those wintered out. For I suspect that severe cold weakens rather than strengthens. [I am satisfied that our home-apery locality has been almost ideal for outdoor wintering. Those closely intertwined evergreens that outskirt the yard have been giving a greater protection than one would suppose, and the results have been better than that secured on the average for outdoor bees. At our out-yard there were no windbreaks, and the north wind had a clean sweep. Here we tried our reg-

ular chaff hives and strong colonies. Although the bees did not die outright at this yard, the colonies were so depleted that it seemed best to bring them home and winter them in the evergreen inclosure. So I doubt very much whether, without the evergreens, a high board fence, or windbreak of some sort, we would have been able to secure such results as we have obtained from year to year. I am now satisfied of one thing: That outdoor-wintered bees should have a good windbreak around the bee-yard. It may be a barn, a high board fence, or a row of out-buildings. But it should be *something*.

But in spite of the ideal conditions at our home yard, Mr. Wardell says our cellar-wintered bees are in the lead; and this, too, in addition to the fact that the indoor bees consumed very much less stores.

But I shall not go so far as to advocate indoor wintering for every one. The latitude, the general climate, the kind of cellar that one can afford or has—all these are determining factors, and should be carefully considered. In a mild locality, or where one has naturally good windbreaks, has no bee-cellar, or at least a very poor one, I would recommend the outdoor plan; and in almost any locality a poor bee-cellar—one that is too small—would be much worse than good outdoor wintering on summer stands.—Ed.]



Mourn for the score of thousands, burned
Beneath old Vulcan's blast;
Saint Pierre is sunk in one dread heap,
In one cremation vast.

"The Dissected Bee" is the title of a new book that has just been published in Milan, Italy, and written by Mr. Alessandro Benussi-Bossi. As an illustrated volume on the anatomy of the bee it is quite unique. There are 89 pictures in it, each showing the field of view as seen in a large microscope. Let the reader imagine that he is looking at a bright disk four inches in diameter, and that on this surface there is seen the compound eye of a bee, or a foot or a wing, or some other part. This view is then photographed and reproduced in half tone, giving the reader a very good representation of a bee as viewed by the microscopist. The pictures are described in Italian, French, and English. It is a great pity that the wording of the latter language was not the work of Dr. Miller, Mr. Dant, or Prof. Cook; for as it is, it is certainly the strangest attempt in that line I have ever seen; and when we add to the wording the further attack of the Italian printers on what ought to be good English typography our regret is the deeper. But laying all that aside the author has given

to the world something of great value in the scientific line. The book has 373 pages, the size of this, and is printed on the best paper I ever saw in a book. The press-work is No. 1. The price is marked as 12 francs, or about \$2.25. I do not believe there is a bee-keeper in the world who will not feel that he has a treasure if he gets this work. In one place the author says the sting of a bee is used to inject a small quantity of bee-poison into a cell of honey just before it is sealed over. Can or do bees secrete that much of so concentrated a liquid as that? Dr. Miller may answer if he can.

The same author has also just published "The Art of Cultivating the Bee." It is entirely in Italian, and contains 336 pages the size of this. It seems to be quite abreast with the times, but has practically no cuts.

BEES AND FRUITS.

A French writer says: "The seeds of the basswood contain an oil the excellence of which was known more than a century ago, but which has been but little used. The seeds can be gathered in abundance under the trees. They fall in autumn, and contain 58 per cent of an oil noticeable for its clear color and delicate taste, with no trace of bitterness, and having no special smell. It may be compared to the best olive oil, and possesses the valuable quality of never becoming rancid. It is good as an article of food and for mechanical purposes, as it keeps perfectly.

Two of the principal journals of Paris having made a great ado under the title of "Killed by the bee," a French bee-keepers' society investigated the matter and makes the following report, the substance of which I translate:

On the 6th of March, about 10 in the morning, Mr. Boiveau proceeded to secure the contents of a straw hive. Not being furnished with a veil he received during that operation not to exceed three stings, two on the neck and one on the hand. He did not suffer enough to create any fear, and he took his dinner with his family. A little later, feeling uneasy, he retired, while his family resumed their work in the field. About two hours later his sickness increased. Mr. Boiveau arose, called his neighbors to his help, and almost immediately breathed his last. He had been ill for some time, not being able to follow any hard work, and was, besides, very fleshy, his blood being in a bad condition. It is the opinion of his family as well as of his neighbors that he did not die from the effect of the stings, but that the few stings he received simply hastened on what was very near; or, as they put it, it was the last drop of water that caused the vase to run over.

The editor well adds:

Thus falls to naught this terrible accusation. But how many have read it who have not read the explanation?

BRITISH BEE JOURNAL.

Concerning the effect of bee-stings as a preventive of contagious diseases, a correspondent has the following to say:

In reply to your correspondent "Formalin," Do bee-stings protect one from infection? I should say this opens up a most interesting subject, and I should be pleased to see replies from bee-keepers generally. I can sincerely say that, since I have been "inoculated"

by bee-stings, I have neither been attacked with influenza nor suffered from any contagious disease, though influenza has twice been through the house, excepting my boy, five years old, and he has been stung many times almost ever since he could first toddle. He has also been entirely free from all children's complaints. I have not been revaccinated myself, but my little boy was when over four years old, and the four inoculated places "took" well, with not much inflammation, and he suffered but little from the result. I have asked several neighboring bee-keepers their opinion on the subject, and they join unitedly in saying they have never had any infectious disease, nor been in any way inconvenienced when revaccinated. Until suggested by "Formalin" I did not attribute this exemption to inoculation by bee-stings, though previously I suffered a good deal from rheumatism.

It is stated by what seems to be good authority that wasps are subject to foul brood, *bacillus alvei* having been found in their nests. It is feared this will be a new agency for scattering that disease.

AMERICAN BEE JOURNAL.

The following gives us reason to expect something interesting concerning honey adulteration before many days:

"Mr. Wm. A. Selser, wife, and daughter, stopped off in Chicago, for a few hours, while passing through on their way East recently. They had been away from home for nearly three months, having been in Texas, California, Colorado, etc. Mr. Selser was representing the Government in its investigation of honey analyses, he going out to secure samples of various kinds of honey in different parts of the country. His report will likely be made in about a month to Prof. H. W. Wiley, at Washington."



PART EMPTY FRAMES, AND PART FRAMES WITH COMBS OF BROOD AND HONEY WHEN HIVING SWARMS.

"Mr. Doolittle, I think my bees are going to swarm soon, and I wish to know how I can best manage in hiving them."

"What do you mean—the *modus operandi* of hiving swarms?"

"No, not that. How would it work, by way of contracting the brood-chamber, so to speak, to take two or three frames containing pollen, sealed brood, and honey, from the colonies not strong enough to swarm, and put these in the hive, near the sides, in hiving a swarm, instead of using division-boards, the center of the hive being filled with empty frames or frames with starters?"

"What would be gained by so doing?"

"This would save the trouble of looking over the hive and taking out the division-boards later on, and giving the bees a start at housekeeping also."

"I think I have seen some such plan as this recommended in some paper of the past, but I am opposed to such a method of procedure."

"Why?"

"As I consider it, there are three things against it; the first of which is, that the

bees would be likely to fill these combs with honey as soon as the brood emerged from them, thus giving the three combs solid with honey instead of having that much honey in the sections, thus thwarting the only purpose of contraction, which is, to secure the first and best quality of honey in the sections, and also to entice the bees to work in the sections before they commence to store honey in the brood-chamber to any extent."

"Then you do not think these combs would take the place of dummies?"

"No. How could they? The bees, in this case, could and would store honey in those cells as fast as the brood emerged, while with the dummies none could be stored, for they simply take up space. Then, again, this would be rather a method of expansion, for the bees would have to spread out over these combs to keep the brood warm, so few could get into the sections while the dummies simply take up space, the bees not having any desire to hang around the outside of them."

"I think I see that part. But what is the second thing against it?"

"If the combs had any amount of sealed brood in them, so that the emerging of this brood materially strengthened the swarm, it would be very likely to result in swarming, or the issuing of 'virgin swarms,' as they are called, where a swarm of the present season casts a swarm."

"Could not these swarms be returned?"

"The returning of them does little good, for, as a rule, they are much more persistent in continued swarming to the end of the honey-flow than is an old colony; and this persistency always destroys the prospect of a good yield of section honey. I have often had swarms go to work with a will in a large number of sections, working till they were about two-thirds completed, and then, just as I was priding myself on having a large lot of beautiful honey from such new swarm, they would swarm, and be so persistent in swarming that none of said sections would be fully completed, while the nice looks of the work they had begun would be spoiled through the long failure of its completion."

"Well, that does not look encouraging, surely. I had not thought that this brood would cause them to swarm. My idea was to help boom the section honey by adding bees to the swarm by way of the emerging brood. But while we are talking, give us the third reason you have against my plan."

"The third is what will be the greatest trouble of all."

"What! something worse than you have been speaking about?"

"Yes. The main trouble with such a plan of working lies in the persistency of new swarms in building drone comb in the remaining part of the hive, where any part of it is supplied with any thing in the shape of frames filled with comb."

"Why do they do this?"

"The *why* of this is something I could

never fully understand; but an experience of more than thirty years along this line has proven to me that bees can not be depended on to build worker comb during the first week after being hived, if there is any completed comb in the hive at the time of hiving a prime swarm, more than what little is necessary to use as starters along the top-bars to the frames, where starters of comb are used in preference to comb foundation, as some think better."

"Why do you say *prime* swarms?"

"With second or third swarms the case is different, as bees are more apt to build worker comb with a young queen when she first commences to lay, and only unfertile queens accompany these latter swarms; and in this case the queen does not commence to lay till the bees are fully accustomed to their surroundings, and they build but very little comb, where any combs are put in the hive, till their queen commences to lay. And when she does begin to lay she crowds the comb with eggs as fast as built, thus helping also the matter of building worker comb. Then the prime swarm has a much larger force of bees; and, while she is hanging about the frames of comb and brood given, depositing her first few eggs there, the bees are building comb rapidly; and as they see no necessity for building worker combs to be occupied with honey, they go to building combs for the storing of honey, which generally are of the drone size of cells."

"Is this kept up till the hive is filled?"

"No, not unless the queen is very old or very poor. After the bees have built what would amount to two or three frames of drone comb, and the queen recovers her normal egg-laying powers which she had before the swarm issued, then the bees go on and build worker comb; but we have worker and drone comb all mixed through the frames, which is a condition an enterprising apiarist does not like, one which should never be tolerated by any would-be bee-keeper, even, and one which, if allowed to remain, results in a diminished crop of honey each year as long as the combs are allowed to remain in this shape."

"What would be your advice then?"

"My advice to all is, and has been ever since comb foundation came into use, to use only starters in the frames in hiving swarms, or else fill all frames with foundation, or give all frames filled with comb. And I believe this is good advice too."

"Why not use part frames of comb and part frames of foundation?"

"Frames filled with foundation, mixed with those containing combs, do much better than frames having only starters when used with combs; but even this is objectionable on account of the bees lengthening the cells on the combs given while they are working out the foundation, so that the combs along the top-bars to the frames will be very thick when completed, while those with foundation are correspondingly thin. But I have some work I must go at now."



In a late issue I gave the text of the new anti-adulteration law that is now in force throughout New York. From recent clippings that have been sent, it is apparent that the glucose-mixers are hunting their holes, and that the retailers are trying to get rid of their so-called "pure" honey. Good! Ohio, Illinois, and New York, each of which has big cities, have laws that will stop the adulteration of honey. Let the good work go on.

THE iniquitous sweet-clover bill that was introduced in the Ohio Legislature has been killed, and killed so dead that I hope no succeeding legislature will try to pass another measure like it. This only illustrates that bee-keepers, when they are united, and write to the members of their legislature, can exert a powerful influence. If it had not been for the bee-keepers of New York the new anti-adulteration honey law would not have been passed.

NATIONAL HONEY STATISTICS.

HERE is a resolution that, as will be seen by the date, was sent in some time ago, but which I overlooked. I will now place it before our readers, and suggest that the Board of Directors of the National Bee-keepers' Association take this matter under consideration.

RESOLUTION PASSED AT THE ONTARIO CO., N. Y., BEE-KEEPERS' MEETING AND INSTITUTE, CANANDAIGUA, N. Y., DEC. 13, 1901.

Resolved, That it is the sense of this convention that the officers of the National Bee-keepers' Association should establish a system for gathering and reporting monthly, during the honey harvest, the comparative yield of honey up to date of said report, and that we request them to do so; also,

Resolved, That copies of this resolution be sent to, etc.

W. F. MARKS,
E. H. PERRY,
H. C. ROAT.
Com. on Resolutions.

THE BIG NATIONAL CONVENTION AT DENVER.

FROM various newspaper clippings that have been sent to us, it is apparent to me, at least, that the bee-keepers of Denver are making preparations to entertain the members of the National Bee-keepers' Association in a way that was never attempted before by any other body of bee-keepers in the United States. I verily believe that our next convention, at Denver, during the first week in September, will be the greatest ever known in the history of the Association. Denver is central, even if it is so far west to us Easterners. It is also right in the heart of one of the best honey localities in the world; and that locality, good as it is, is right in the heart of the great West, where in the future at least three pounds out of five of the honey of the United States will be produced.

"KELLOGG'S PURE HONEY."

THE people who are putting out "Kellogg's Pure Honey," purporting to come from Medina, are beginning to send these goods out again. As I have before told our readers, no such honey bearing that brand is put up anywhere in Medina, and all the samples of these goods we have had analyzed were the vilest of glucose. Of all the bad decoctions masquerading under an honest name purporting to come from an honest town this is by far the worst I ever saw. Medina is a village of only about 2000 inhabitants. We know every business concern in town; and if Kellogg honey were put up here we should certainly know it. The fact is, it is put out by a Kansas City firm who are trying to trade on our good name. They know that any thing that comes from Medina in the bee line is supposed to come from the Roots. They know that we are fighting adulteration; they know, also, that the general public knows it; therefore any thing hailing from Medina they suppose will be considered as pure goods, and that is true.

We warned the concern putting out this stuff, and they desisted for a time. We are now gathering fresh evidence to put in the hands of our attorney; as we intend to bring suit we solicit the aid of our readers.

If you can, learn from your grocer who it is that puts out these goods. Obtain, if you possibly can, a certified copy of a bill—or, better still, obtain the original bill itself of this Medina (?) honey.

Later.—Since the foregoing was in type I learn that the State Food Inspector of Idaho, where this stuff has been sent, is looking after this Kellogg honey; and he says if he finds it adulterated, every bottle of it will be condemned and ordered out of the State. If the goods are like what we have seen and tested they will be barred from the State, sure.

BEE STORIES IN MAGAZINES; HOW TO GET SOME GOOD ADVERTISING FREE.

BEE stories and facts about bees are getting to be quite a fad in the illustrated papers and magazines of late. The *Youths' Companion* recently had a very nice picture on its first page, showing a modern apiary of 8-frame Langstroth hives, and a beautiful girl in the foreground on whom a swarm of bees was clustering. The story is quite tragic. It relates how the girl almost swooned, but kept still without flinching until her uncle, a bee-keeper, hived the bees off from her. Too bad it wasn't her sweetheart! What was almost a tragedy would have ended in a beautiful romance.

Another interesting bee story appears in *Ainslee's Illustrated Magazine*.

All these stories and write-ups are very helpful, because the general public are now beginning to get a glimpse of how honey can be produced in such immense quantities. When consumers generally under-

stand just how comb honey is "manufactured" by bees in the hives, and that the beautiful little combs they see in the boxes on the market are real bee honey, we shall begin to see an advance in the price of our product.

Now, brother bee-keeper, every time you can get hold of a reporter invite him to your bee-yard and show him how you handle bees. Mayhap he will give you a nice little advertisement; for to be known in any locality as "the bee-man who produces real bee honey" is worth something. Then when you are around selling your product your prospective customer will say, "Oh, yes! this is Mr. Jones whom I read about. Yes, I'll take some of that nice bee honey."

STAHL AND HIS SPRAYING CIRCULARS.

It will be remembered that Mr. Wm. Stahl, of Quincy, Ill., manufacturer of spraying-outfits, is sending out circulars broadcast all over the country, advising the spraying of fruit-trees while in bloom. These circulars have a string of testimonials without date, saying that spraying in bloom is beneficial. Notwithstanding some of the agricultural papers (no way interested in bee-keeping) have told Stahl that his teaching was contrary to the advice of all of our experiment stations, he persists in his course in sending out those same circulars all the more.

Some two or three years ago the experiment stations at Ithaca and Geneva, N. Y., made quite an elaborate series of experiments in spraying one set of trees while in bloom and another set before and after bloom. The result of all these experiments showed conclusively that the latter plan was much the more preferable. More and better fruit matured; and it was shown, also, that many of the spraying-liquids had a decidedly injurious effect on the delicate organs of the blossoms.

Very recently, N. O. Booth, assistant in horticulture at the Missouri State University, has prepared a bulletin giving general directions what, when, and how to spray. He says very emphatically that the spraying should be administered *before* and *after* blooming, and this is the advice that *all* the experts give.

We have just come in possession of a letter sent to one of Mr. Stahl's customers, who, having followed his advice to spray while in bloom, found that, so far from giving beneficial results, it was decidedly injurious. This is what Mr. J. M. Fay, the party referred to, wrote to Mr. Stahl himself, and is right in line with the experiment stations all over the United States:

Wm Stahl, Esq., Quincy, Ill., Dear Sir:—About one year ago I purchased a spraying-outfit from you; also received your private instructions on spraying, which instructed me to spray fruit-trees when in full bloom. Some of my early varieties had mostly got through blooming when the spraying-outfit arrived; but the later varieties were in full bloom, and this spraying was done according to instructions, except a few trees which were not sprayed at this time, because the mixture I had on hand ran out and I did not have enough to complete the work, which was done later, but not

before the blossoms had all fallen off. Now, what I wish to say is, the advice you gave me in the instructions you sent me, to spray in full bloom, is all *wrong*, and was very unsatisfactory to me; for on the trees I sprayed in full bloom, the application at this time *killed* and destroyed all the best fruit by its falling off, and the trees next to the ones sprayed in full bloom, that were sprayed later, after all blossoms had fallen off, gave a third more fruit and a fourth larger in size. So you see that recommending to spray in full bloom must injure *your* business as well as do a *great* damage to the innocent by following your advice. I write you this so you may not injure others in this way.

Very respectfully, J. M. FAY.

Detroit, Mich., April 26.

Of course, Mr. Stahl will never give *this* letter publicity in his circulars, for it is not to his way of thinking; and I venture to say he has received a good many like it; but this is the only copy that has so far been placed in my hands. There are plenty of careless observers who, having never made any *comparative* experiments, would conclude that spraying during blooming would be beneficial; and I do not suppose there is any doubt that spraying, even during blooming, would result in a better crop than without spraying. While it would certainly cut down the quantity of fruit, injure some of it, and kill bees, it would probably destroy some of the enemies that would injure even more than the spraying. A string of testimonials saying that spraying during bloom is beneficial, such as Mr. Stahl is sending out, does not prove any thing.

The advice that this man is sending out broadcast over the country is doing a fearful damage to the bee-keeping industry. Every spring after the spraying season we get reports showing that quantities of young brood are poisoned, and this comes just at a time when it can be least afforded. And not only is brood killed but bees are destroyed by the thousands. The effect of this is to cut down the honey crop by one-half. If there is any law that can stop a man from using the United States mails for the purpose of propagating heresy that is damaging to a large industry, the National Bee-keepers' Association will see to it that it is enforced. The A. I. Root Co. will help raise a fund, if the \$1000 to the credit of the Association is not large enough to prosecute.

Another manufacturer of spraying-outfits who had been advising to spray during blooming time, as soon as he had been informed of his error immediately recalled his advice, and now sends out directions in accordance with the experiment stations.

THE LATEST FROM THE PEAR-BLIGHT FIELD IN CALIFORNIA.

N. W. MOTHERAL, of Hanford, Cal., has been one of the principal persons in that district to stir up feeling against the bee-keepers. When I came on the scene there as an officer of the National Bee-keepers' Association he thought I was going to bluff and bluster, and immediately began to inform me, before I had a chance to say any thing, what they, the pear-men, were going to do; and among other things he intimated that, if we didn't get the bees out, they

would poison them. And there were two or three others who were disposed to get into a hot argument. But argument, under such circumstances, never accomplishes much. I listened to what they had to say; then after talking with them a little I left them fairly good-natured—so much so that Mr. Motheral came out in one of the papers with a statement to the effect that I was quite a decent sort of chap, even if I was one of those bee-men. In the mean time it appears that Mr. Motheral has become sour again, and is in for a fight, judging from what I can hear from the local bee-keepers. (Say, can't you bee-men sweeten him up again?)

It will be remembered that an agreement was made between the bee-keepers and the fruit-men that a certain district about two miles square should be cleared of bees. This was done, and in the mean time certain experiments are being conducted by which whole limbs and whole trees are covered with mosquito-netting. In the *Hanford Journal* of April 19th Mr. Motheral comes out with the statement that all the Bartlett trees in his orchard that were not protected by mosquito-netting were affected by blight; that those trees that were covered were not affected; that, further, in Mr. Charles Downing's orchard, he understands, where these experiments were conducted on a larger scale, the same results were seen.

Mr. F. E. Brown, Secretary of the Central California Bee-keepers' Association, immediately made an investigation, and reported his findings in the *Hanford Sentinel*. He visited, he says, the Downing orchards and several others in that vicinity. True enough, several of the large trees were protected by the netting so that no bees could get at the blossoms; "but contrary," he says, "to the report of Mr. Motheral, there was plenty of blight; however, not so much as on the trees uncovered; yet the difference is not so great, and there is no more fruit upon these trees than on the trees not protected. The reason is, the fruit was not pollenized, and the blossom with the stem attached dropped off."

Prof. M. B. Waite, of the Department of Agriculture, who read a paper before the joint session of the National Bee-keepers' Association and the American Pomological Society, at Buffalo, admitted that, while bees might scatter pear-blight, other insects besides bees could carry the infection; but that, as most of our pears are sterile to their own pollen, and that this was especially true of the Bartlett pear, insects were necessary for mingling the pollen. "In California," he said, "they have had such outbreaks of pear-blight that many thought they can dispense with the services of the bees in this way, that the Bartlett pears would set all their fruit, if necessary, without the visits of the insects." But he seemed to be doubtful whether, even if the bees did scatter the virus, the pear-growers could afford to dispense with the bees.

If what Prof. Waite says is true, then it

appears that Mr. Motheral, one who seems to be the chief accuser of the bees, is mistaken; and if covering up the trees so that not a single bee can get to them does not prevent pear-blight infection, it would look as if the removal of the bees would in no way affect the result any more than, *perhaps*, it would diminish slightly the amount of the blight. But the decrease in the blight would be more than offset in the lesser quantity of fruit set, as the bees, nature's pollinators, would, if the pear-men could have their way, be absent.



GOVERNMENT APICULTURAL WORK.

Dr. Miller's Attitude toward it; the Introduction of New Stock.

BY DR. C. C. MILLER.

Prof. Benton, page 372, seems to think I justly deserve "the severest criticism which due courtesy will permit." After reading his article through, it hardly seems to me he has taken much account of courtesy, due or undue. In his report, Mr. Greiner made the statement quoted by Prof. Benton, "It was believed," etc., and it is a common thing to understand that as meaning "It was believed by the convention." I so understood it, and had no idea that I was misquoting. I am sorry that I did not quote literally, so there could be no possible misunderstanding, and for not doing so I ask pardon of Secretary Greiner and the Ontario Co. Association. It may be a question, however, whether my understanding of the matter does not come nearer the truth than does Prof. Benton's. I understood that the general view at the convention was that it was better for government to spend money to advance control of mating than to spend it on importing foreign queens. Prof. Benton intimates that this was the view of "some member or two or three members." Mr. Greiner says: "While the Association did not take action on this proposition, still, the matter was brought up again by another member, showing that it had gotten a hold. Undoubtedly it will be pushed on at some future time." Is it likely Mr. Greiner would take the trouble to say, "it had gotten a hold," if at most it had gotten hold of only three members? Would he say, "Undoubtedly it will be pushed on at some future time" unless he thought the majority of the Association would favor it?

Prof. Benton says I seem ready to throw cold water on any work in the bee line that the government might sanction. In that he surely is mistaken. I do not know of a single instance in which I threw cold water on any work in the bee line that government

sanctioned. As Prof. Benton says I seem so ready to throw cold water on such work, he probably imagines that there have been a number of such instances. When making such a charge in so public a manner, is it not "due courtesy" to be specific enough to name the instances, or at least one of them? Will Prof. Benton please do so?

I am glad to be able to say that I think there is a little excuse for Prof. Benton's mistaken idea. In the *Stray Straw* in question, when I spoke of the convention now talking as I had talked, I had in mind the matter of the introduction of *apis dorsata*, a matter, so far as I know, that had not the sanction of government. I imagine that Prof. Benton thought that I had in mind the work actually done by government lately in introducing queens from new regions of Italy, etc. Moreover, I *now* think that the convention had in mind this actual work of the government, and had *no thought* of *apis dorsata*.

The question may be asked why I did not think of the work that Prof. Benton had done in introducing the queens mentioned. For the simple reason that not until four weeks after that *Straw* was in print did I learn that such work had been done, and then I learned it through a *private source*. Due courtesy forbids that I should criticise Prof. Benton in this regard; but I hardly think it will be discourteous to say that bee-keepers would be grateful if he would keep them informed through the bee journals as to what he is doing; and that if he had taken a page of *GLEANINGS* to tell all about the importations he had lately been making it would have been, at least for some, more interesting reading than to have had the same space occupied in berating me. And in this case it might have saved some misunderstanding on both sides.

Prof. Benton says I have done nothing toward securing appropriations from government. Is that such a capital offense as to need three lines of italics in the telling? If so, why am I signaled out to be gibbeted, when in the same sentence he practically says that the entire bee-keeping fraternity, with a slight exception, are equally guilty? for he says that what has been done has been done "almost single-handed." But if I have been negligent in that respect, I seem to have done my full duty in another respect, for he credits me with "a bushel or two of propositions" as to what I might think best should be done.

Possibly he may not be entirely correct in either regard. At any rate I do not desire undue credit in the "proposition" line, and I am a little curious to know what I have proposed.

I am sorry that Prof. Benton wrote the paragraph referring to the Albany convention in such a way that it may be understood as referring to me. I was not at that convention, and had nothing to do with the matter he mentions.

Some of the new members of the *GLEANINGS* family may ask the question, "What

is all this about, anyhow?" It is only fair that I should reply in a few words. There is a big bee in India, *apis dorsata*, that some of the bee-keepers wanted brought to this country. Along with some others I opposed its introduction until it was learned whether it could be controlled, for there were reports that it was migratory and would not be confined to a hive, and it was feared it might be a case somewhat like the introduction of the English sparrow. Among those in favor of the introduction were some of the Ontario Co. bee-keepers, if I am not mistaken; and when I understood that such introduction was opposed at the late convention I thought the joke was on them, and that they would take my reference to it as good-naturedly as I intended it, for I consider the bee-keepers of Ontario Co. good-natured as well as intelligent. Knowing nothing about the late introduction of queens by the government (which I may say, by the way, could meet only my hearty approval), it can easily be seen why I supposed the reference was to *apis dorsata*. The probability is that Prof. Benton thought I was speaking against the work he has done, hence his article.

When he understands the matter fully I am sure that he will have the courtesy to absolve me from all blame. There is enough fighting to do against enemies to the pursuit without having any quarreling within our own ranks. Prof. Benton has my thanks, and should have the thanks of all, for making an effort, and a successful effort, to have increased recognition from government; and he should also have thanks for all that he has done in the interest of the pursuit. He may always count on my hearty co-operation in any good that may be done.

Marengo, Ill.

IMPORTATION OF HONEY-BEES.

Basswood Timber for Top-bars; Comb-honey Canard.

BY F. GREINER.

Mr. Editor:—In order to understand fully what was meant when saying, "What money our government expends importing bees might better be used otherwise" (see Dr. Miller's *Straw*, page 275), allow me to define my position.

For more than 30 years we have been importing bees quite largely from Italy. There existed a good reason for doing so, and paying many thousands of dollars to the queen-breeders of Italy. After testing the Italian bee for these many years here, the American bee-keepers have come to the conclusion that this bee is well adapted to our widely varying climates. The majority of honey-producers have it in their yards, and propagate it.

The American people in general have the name of being the most practical business men, and deservedly so. We may, there-

fore, infer that they will use their business faculties in breeding bees as well as in other lines of business. I have as much faith in our *own* queen-breeders as in those of foreign lands—nay, even more; and I do believe they will produce bees superior to those in Italy. It may be that Italy has a slight advantage as to pure mating; but it is also true that, in many localities here, the Italian bee is sufficiently in the majority, so that but few queens are even mis-mated. It seems to me the time has now come when we can with profit to ourselves stop further importation of this bee. If we would spend what money we send to Italy in improving the bee we now have, we should make advances faster, and be ahead in the end.

We have also imported quite a few Carniolan bees during the past two decades, and in a few selected localities the breeding may be carried on quite successfully. We might, therefore, dispense with further importations of this bee, and put money into our own breeders' pockets.

As to other races of bees, the matter is different unless we are all agreed that there were no others worthy of our attention. This, however, is not to be expected in the near future. What Dr. Miller has previously said relative to importing bees and discouraging it, had reference to *apis dorsata* only, or I am mistaken. I don't think he included either Italian or Carniolan bees. If he did, then I indorse that part of it. It may not bring us any gain to bother with the big Indian bee. I don't think it will myself; but there are many others who think it may, and for this reason I am not opposed to making some effort to investigate the matter.

Before I close my communication I wish to say a few words on the lately brought-up question, basswood versus pine for top-bars. Mr. Root, when I hear a man recommend a thing which I have found utterly wanting, or make statements of so-called facts which are not facts at all, it naturally weakens my confidence in that man. This reminds me of the statement a visitor at our bee-keepers' meeting made last winter. He said his colonies came out of the winter with 16 or 18 lbs. of bees to the hive. It is true, I have not weighed bees at that time of the year; but I have at other times, and I should say any colony having 5 lbs. of bees April 15, in my locality, is a very good one and worth the money. No, I did not believe that statement. Our good visitor surely made a big mistake. To recommend basswood for top-bars is a case similar to the above. I have tried basswood only once, and have been sorry for it ever since. Wax-moth larvæ may bore into pine and not into basswood. I confess I have not observed it. But what of it? How many top-bars are injured in this fashion? Not one in a hundred, except, perhaps, where quilts are used the year round. Then why use basswood, that will warp and twist all out of shape? I am not pre-

pared to say basswood top-bars will warp *out of the hive*, as some one has said; but I am sure you will wish it did if you ever use it.

To create greater confidence in our product, both extracted and comb honey, I wanted to say a good while ago that stamping each section and labeling every package of extracted honey, giving name and place of the producer, will have a beneficial effect, as I know from experience. Bee-keepers who have some influence with the newspapers of the large cities could do a great deal of good by writing suitable articles for these papers. What appears in apicultural and agricultural papers I am afraid will not reach that class of men we need to reach most.

Mr. Stahl, the originator of the last comb-honey canard, has not made any retraction so far as I know. He probably has not yet fully recovered from his Rip Van Winkle sleep, has not yet realized that the honey of the present day is not like that of his forefathers stored in old black comb, with bee-bread interspersed, and having a perceptible odor of brimstone. He may have acquired a liking for such stuff, which would explain that our virgin comb, snowy white, and melting in the month, aromatic, and beautiful to behold, does not find favor with him.

Naples, N. Y., April 10.

[Dr. Miller has an article in this issue which explains just what he did think—that he had in mind *apis dorsata* and not other races of bees. It appears that you understood him correctly while Prof. Benton seems to have read him wrongly.]

With regard to the use of basswood *inside* of hives, much depends on the locality; but I should say, generally, that a basswood top-bar would not be as good as one of pine. Indeed, the Root Co., so far as I know or recall, has never used basswood for top-bars to brood frames. There is hardly any thing better for hives, inside or outside, than ordinary white pine. But, unfortunately, this wood is getting to be very scarce; and the time may come when bee-keepers in this locality will, on the grounds of economy, have to use some other timber—possibly whitewood, cottonwood, or poplar. All of these woods are nearly alike, varying somewhat according to the locality. Basswood will probably be as scarce as pine, and I should not be surprised if, twenty years hence, we had to get our lumber from California; and if the railroad companies charge exorbitant freight rates, as they do now, we might be very glad to have all parts of our hives made of hard wood; but no hard wood will stand the weather as well as good white pine. As it is, a very large portion—probably the most—of our white pine we use now comes from Canada. The Michigan pine is practically gone.—Ed.]

Since the foregoing was in type the following has come to hand:

Dear Mr. Root:—I find that our Ontario County, N. Y., bee-keepers are very much displeased with the version Dr. Miller reads into my report given in *American Bee Journal* of March 6, 1902. In addition to what I wrote in a previous letter I wish to say that I did not intend to convey the idea that what I had said at the convention regarding the importation of foreign bees was to represent the sentiment of the Association, but simply that of the speaker. As I re-read my report in the *American Bee Journal* it does look as though I meant it otherwise. However, it seems Mr. Benton understood it. FRIEDEMANN GREINER.

Naples, N. Y., May 6.

[Dr. Miller's reply to Prof. Benton will make his position clear.—ED.]

NUCLEI MANAGEMENT.

The Swarthmore System any thing but a Success; an Experience.

BY QUEEN-BREEDER.

Continued from April 15th issue.

To insure the safe return of the queens I secured a number of wooden paint-tags, each of different color, and fastened one under each flight-hole for an alighting-board. This was contrary to Swarthmore, who claims, I think, that a queen pays no attention to color or shape, but is guided solely by the little cluster of bees awaiting her return; but it was in accord with E. R. Root, who claims that both color and shape are essential in guiding the queen. Certainly the latter plan can do no harm, and so I use it.

I have now 40 frames on stakes set 4 feet apart in rectangular form, each containing 8 queens, or 320 in all. The next day after opening the flight-holes, drones were flying freely, and I was on the lookout for queens. Standing inside, and at one end of the rectangular space, I was able to get a good view, and I shortly saw a queen emerge from a box only a few feet from me, and, after a short turn or two, she was lost to view. While awaiting her return, three others came out from the same frame and took their flight. In about ten minutes, what I supposed to be the first queen out returned, but without any evidence of having met the drone. This queen hovered around the entrances of several boxes, and attempted to enter, but was repulsed by the bees, frequently dropping into the grass, and then renewing the attempt with the same result. Finally I picked her up, and, placing her at the proper entrance, she ran in at once.

Other queens were now issuing from different parts of the apiary. Of course, I found it impossible to watch all of these at once, so I confined my observations to the frame first noted. All around this frame queens were circling, and some were trying to enter, and this I found to be true of the

other frames generally. Soon a queen that had evidently met the drone returned to the frame in question, and, after attempting several entrances, entered what was probably the right one. This I marked for future reference, together with several others later on. I was surprised at the difficulty shown by returning queens in finding the proper entrances, and I am convinced that many queens are lost in this way.

The next step is a search for eggs, which one might reasonably expect to find in a day or two, or within a week if the queen is all right.

Now, right here is another one of those perplexing points of practice—not explained by Swarthmore—which makes one feel like giving up the whole thing in disgust. Swarthmore says, "Examination for eggs may be made through the backmost holes," etc. It must be borne in mind that each one of these little nucleus-boxes has been already filled with eggs, honey, etc.; and when the backmost holes are opened, nearly every available cell (not containing bee-bread or honey) will be occupied by this time with quite a fair-sized larva. Now you see what a predicament one is in. What shall—what *can*—be done? I might wait for the bees to remove the larva and thus make room for the new eggs; but would they do it? Probably not, and the experiment is too hazardous. I might remove the cover of each nucleus, and with a pin remove the larva; but this would require time and fussing, and disturb the queens, and result in loss, no doubt. I finally take 320 empty section boxes and fit a piece of drawn-out comb inside each one, and on one side I place a cover taken from a nucleus-box on the side opposite the flight-hole, and these section boxes are then fitted by a clamp to each nucleus-box, on the side opposite the flight-hole, so that I then had two combs instead of one in each nucleus. This arrangement solved the difficulty, and gave room for laying eggs.

In due time I found, by examination, eggs deposited in about 200 boxes, which I marked for convenience. The remaining boxes were, many of them, queenless, and others with queens evidently not fertilized. I gave virgins to the former, and awaited developments with the latter.

Of the 200 boxes containing eggs, I supplied 100 with queen-cards, to be kept until the brood hatched for warranted queens, etc. I had some orders for untested queens to be filled in a short time, and congratulated myself on having the other 100 queens to apply; but, alas!

The best-laid plans of mice and men gang aft agley, And leave us naught but fear and pain for promised joy.

Well, I went to these little colonies, expecting, of course, to find in each a fine healthy queen. Out of the 100 I took 27 queens, all that could be found. The remaining 73 were queenless, and many with queen-cells in various stages of construction. Here was a direct loss of 73 queens.

This experience made me fearful of results, and led me to make some careful observations. I found that the bees that collected around one flight-hole had a habit of running over to a neighboring flight-hole, and, to my surprise, they were, as a rule, well received, and went in and out, and seemed in a way to make themselves at home. I tried to prevent this by surrounding the flight-holes with section boxes, but without effect. I believe this visiting habit was one cause of the loss of queens. Further inspection showed that, in some cases, even fertile queens left the colony, and, after circling, returned in some instances to the proper colony, but oftener to the wrong one. I now very carefully examined the 100 nuclei designed for warranted and tested queens, etc., and found evidences of queenlessness in a large number, which, upon examination, proved that at least 60 per cent were queenless. These queenless colonies I supplied with virgins. The remaining 40 per cent were left until the brood had hatched, and, on inspection, 24 queens were found in good condition, while the remainder were missing, and this condition of things prevailed until I had lost more than 200 queens, when I began to reduce the number of nucleus colonies under the Swarthmore system, and unite them on four-frame nuclei.

You will remember I had quite a number of little colonies that I had supplied with virgins. These I watched, and gave careful attention, but with no better results than I have already narrated.

I will not weary you with all the details—the fussing with covers, the conditions of sunlight and shade, the shrinking and swelling of the light section boxes incident upon the changes of weather; and, later in the season, the fight with robbers and the invasion of bee-moths; the changes in temperature, hot days and cool nights, etc.; but I will say that these and many others are points of practice that are serious obstacles in the way of the Swarthmore system. I do not wish to be understood as condemning without reserve the Swarthmore system, nor as saying anything derogatory to Mr. Swarthmore, as I am bound to accept his statement in substance, that the system (in his hands) is a success.

In this article I have given you facts as they occurred in my experience in carefully carrying out the details, with what knowledge I could get from the Swarthmore article in GLEANINGS, and my own experience as a bee-keeper.

[The Swarthmore system of queen-rearing is all right, except in the matter of having the queens fertilized, and the reports regarding this part have been any thing but satisfactory. The fact is, small one-frame nuclei, not much larger than a section box, are not a success with the average person, either for the purpose of having queens fertilized or for keeping them or the bees after the wedding-flight.

Swarthmore could not have tested this feature on a very large scale or he would never have launched it on the public.—ED.]

SPRAYING TREES WHILE IN BLOOM.

What Remedy in Law Have Bee-keepers?

BY HARMON SMITH.

Mr. Editor:—Let me say a word or two about Wm. Stahl and his advice about spraying trees when in bloom. Lawyers know there is no wrong without a remedy. Any man injured by his neighbor can find a remedy, ample and sufficient. If I had a neighbor who was about to spray to my injury, the courts of equity would grant me an *injunction*, restraining him from doing so—no doubt of this, and he would have to pay the costs.

I am not so sure, but I think the law (in equity) would or could be made to apply to Mr. Stahl so as to restrain him from using the mail through which to disseminate his poisonous literature—at least this proposition is worth looking up by the National Bee keepers' Association.

We have a law in Michigan making it a criminal offense to spray trees in bloom. Let us enforce it, if we are afflicted with those following Stahl's advice. At section 5689, Howell's Compiled Laws of 1897, we read: "No such spraying shall be done while said fruit-trees or vines are in blossom," except in special exceptions. There is no special penalty attached to this prohibition, but the statutes make this a misdemeanor, and we find the punishment provided for at section 11330 *id.*, which reads: "When the performance of any act is prohibited by any statute, and no penalty for the violation of such statute is imposed, either in the same section containing such prohibition, or in any other section or statute, the doing of such act shall be deemed a misdemeanor;" then the next section makes such offense punishable "by imprisonment in jail not more than one year, or by fine not exceeding two hundred and fifty dollars, or both."

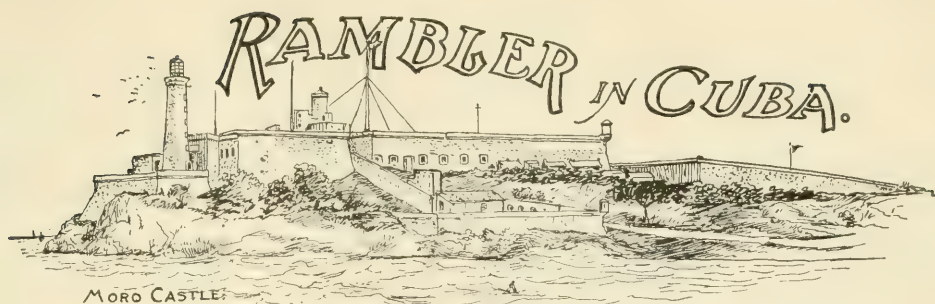
Here is our Wolverine remedy:

1. Injunction to prevent the meditated injury.
2. An action for private damages.
3. It is a criminal offense, punishable as above.

Is not this sufficient? There is no wrong without a remedy; but don't let us be in haste. Law is a very vexatious, precarious, and generally unnecessary business.

Orleans, Mich., Apr. 5.

[These are questions in law on which I am not posted, and I should be glad to hear from some of the bee-keepers of the legal fraternity as to what course could be pursued. In some States there is a direct law against spraying fruit-trees while they are in bloom. In others there is no such law. See editorials.—ED.]



RAMBLE 202.

A Visit at Guanajay; Spanish Honey; Stingless Bees; Effects of the War; Locating an Apiary; Mosquitoes; a Spanish Home.

BY RAMBLER.

Mr. Somerford and I made a sort of flying call upon Messrs. Howe, Beaver, Moe, and Hochstine; but as I am doing up Somerford now I will reserve the doing-up of the other gentlemen later—especially that lively chap Howe, who greatly defamed my qualities of endurance on page 110. I'll fix him. Before we called upon Mr. Hochstine, Mr. Somerford informed me in a confidential way that said gentleman was a great talker, and that he might give me the headache if we stopped too long, or possibly cause a fit of sickness.

I took what he said with some mental reservations, for I had discovered that Mr. S. is no small talker, and I was feeling a little queer under his administration. But when Mr. Hochstine took me to one side and informed me that Somerford had killed one man with talk, and that I should beware of him, I believed him, took the alarm, and retired to Havana, rested several days, and was then ready for another trip. I shall be under lasting obligations to Mr. Hochstine for his timely warning.

Mr. Somerford is one of those men who have a good amount of "sunshine" in their souls. As the old adage has it, "his heart is on his sleeve," and he does his thinking out loud. He may have on that old straw hat cocked up in front and down behind, a jumper and overalls the worse for honey; but when the words begin to flow, and the sunshine (smiles) begins to play, you forget all of the minor surroundings, and think only of the man behind the words. He is ready to talk and advise the humblest, and I believe he would sit down just as unconcerned before president or king.

Mr. S. believes in doing one thing, and doing it well; therefore he is in the honey business for the cash there is in it; and, as previously stated, in a large way.

In order to still enlarge the field, Christmas and the day after were spent in looking up new fields.

Christmas morning Mr. Somerford and one of his men, Mr. Faulkner, a New Jersey boy, and the Rambler, mounted wheels,

and, after a six-mile spin over the beautiful calzada, we arrived in Guanajay. Here Mr. S. had some business with the postmaster, and I was very glad he did. The postmaster is a Cuban, and also a bee-keeper in a small way, but aspires to something larger, and with American hives. Mr. S., with a ready flow of Spanish, gave him many pointers on the construction of the new hives.

It is no matter how forbidding and prison-like the exterior of a Spanish house may appear, there is always a cheerful little court in the interior. The photo gives you a glimpse of such a court. In the end next the postoffice is the family dining-table, and, using the table for a tripod, I secured the photo. Observe the tile roofs, stone floors, the house-plants, stone water-jars and barrel, and the family goat. If the owner has a horse, that is kept here too.

The most interesting object to me was that little oblong box over the further door. There were several of them hanging along under the eaves, and they contained swarms of the stingless bees of Cuba. The bee is much smaller than our common bee, and for a defense it contracts the entrance down so that one bee can barely enter. There is always one inside with its head in the entrance, ready to thrust out any intruder, and I am told that their bill is not to be despised. I hope to make a further study of this interesting bee.

Again we were off, for Quiebrahacha. Here we had our Christmas dinner with Mr. Quint, an American who is in the gardening business, and had on that day as nice tomatoes and egg-plants growing as you seldom see. One of the sad features of this island are the many ruins as a result from the long war. Here was formerly a large town of substantial stone buildings, but it was utterly destroyed—on every side, ruins; churches with wrecked walls; perhaps a bell remains in a broken tower, but it has lost its connection with the earth, and is silent. A few palm houses and a few Cubans reside in what was once the

suburbs of the town. Among the ruins Mr. Quint showed us some of his best-growing vegetables.

We were on again and to Mariel. This is a port about 25 miles west of Havana. Located here is a marine hospital; also,



THE POSTMASTER'S APIARY.

with its prow pointing into the air at an acute angle, is the Spanish war-ship Alphonso XII., sunk during the war.

I might also tell you of the pleasant evening we spent with Miss Edwards, who has about 25 orphan children in charge, and is performing a very benevolent work.

I might also tell you about a Cuban hotel where the eatables are good, but the beds are wretched, all made too short for Americans, and where the pillows are made of sawdust or something about as hard.

Well, Mariel is one of those points on the north coast where Mr. S. expects to establish an apiary, and from which to ship sloop-loads of honey.

Here we bade fare well to good roads, and took to rutty highways, cow-paths, holes in the bushes, or any old thing looking toward new and blooming honey-fields. Mr. S., being guide, set his face toward the head of Mosquito Bay. Passing a goodly acreage of honey flora, Mr. S. would shout, "There, Rambler, how does that suit you? how would you like an apiary here?"

"This may be all right, Bro. S., but here we are on a sort of a hogback, as we would say in California, and no water near. Then here are bad roads."

But not a word from Bro. S. in reply. He went plunging through the bushes on his wheel.

"See here, Rambler," again shouts Mr. S., "look awayover the hill yonder; see the grand

ocean, and see those millions of honey-plants — doesn't that beat California?"

"Pshaw! Bro. S., this is tame beside the Golden State. There, instead of a little hill, it is from ocean to roses, and then to snowclad mountains, and honey beyond the dream of avarice."

Mr. Faulkner is a very quiet young man; but he enthused here and said, "This may not beat California but it beats all I ever saw in New Jersey."

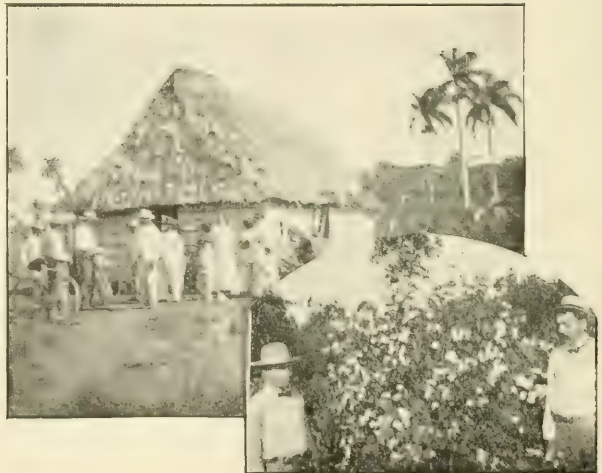
Well, after alternately riding and walking we reached the head of Mosquito Bay; and here, five miles away from anybody and everybody, we found a little palm cabin and a Cuban and his wife. He eked out a living by burning charcoal. Here Mr. S. located another apiary, and hired the Cuban to take charge of it; and he got on so well with him that he offered to take us down the bay some two miles with his flat-bottomed boat; but, of course, Mr. S. paid him well for it.

Mosquitoes must be bad here, for the Cuban looked unutterable misery when asked if there were many. A white man who gets honey in such a place gets it under many difficulties, and at quite an expense.

It was on again through holes in the bushes, and in some places we had to shoulder our wheels. Right here, where there were acres of aguinaldo blanco in bloom, I took a snap shot at it while Bro. S. was establishing another apiary.

"Hey, Rambler, doesn't this beat California?" quoth S.

"There, Bro. S., don't bring up such trivial things in comparison to California."



STIRRING UP THE NATIVES—AGUINALDO BLANCO PLANT.

"But, by George!" quoth Bro. Faulkner, "that beats New Jersey."

About noon we struck the head of another bay, and, luckily, two or three palm huts. The occupants seemed quite taken by surprise and evident alarm to see three wheelmen break through the bushes into their little settlement.

Mr. S. fired Spanish at them, with the result that we had a very good dinner served. Eggs, sweet potatoes, bread and coffee, but not a taste of honey, and tons of it going to waste. We had five men, four women, more or less children, and four dogs, all looking at us while we ate.

"Hey, Rambler!" quoth Mr. S., "what do you think of this—doesn't this beat California?"

"Bless me, no; we have Mexicans and Indians, worse than this, in California."

"But, dear me!" said Mr. Faulkner; "this does beat New Jersey."

Here, where there was so much help available, Mr. S. established two apiaries, covering both sides of the bay. He is after the wasted tons of honey. All of the afternoon it was rough cow-paths, through old sugarcane-fields, and ruined sugar-mills. We all received more or less ludicrous falls from our steeds; but Mr. S. kept establishing apiaries right along.

In the edge of the evening we emerged from the bad roads and struck the good calzada; and, what a relief! Our wheels spun along as though they were suddenly possessed of life, and we were soon at our journey's end. We had planned another trip the next day; in fact, the Rambler did take a spin of 20 miles to Havana. But Bro. Somerford kept his bed. I had a notion to send for Dr. Hochstine, to cheer him up; but after feeling his pulse I did not consider his case dangerous. Suffice it to say, that California came out ahead every time that day.

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NOTES OF TRAVEL.

A Visit to the Limekiln Canyon Apiary of M. H. Merdleson, near Piru; the Prettiest Located Apiary in California; the Wonders of Los Angeles and Pasadena.

BY E. R. ROOT.

I made a stop of about ten days in the vicinity of Los Angeles; and of all the places I visited I do not know of any where I would rather live and die than here in the City of the Angels, if it were not for one thing—the gilded saloon. It is made up of the cream of the best society of the East, who, by reason of ill health, have been compelled to go west and seek a climate where health could be secured and life made possible; and it has also some of the scum of the earth in spite of its angelic name. Excepting San Francisco, one can get just about as near hell on earth in Los Angeles as he can anywhere in the United States. But this is hardly true of Pasade-

na. It is a city of *no saloons*, and is only a short street-car ride from Los Angeles. It is located in the midst of some of the prettiest scenery in the world. It has been truthfully said, that one stopping in this no-saloon town may take a sea-bath in the morning by taking a car and going down to Santa Monica, the seaport of Los Angeles. After his wash he may take the trolley-car again, stop off at Los Angeles and Pasadena, and pick strawberries, and flowers by the wagonloads. In the afternoon, if he is so inclined, he can take the car for Mount Lowe. In the course of an hour or so, after a very picturesque ride on an electric car that glides from earth to the clouds, he can get into a sleigh and have a genuine old-fashioned sleighride, and snowball to his heart's content. After he has taken in winter scenery on the mountaintop he may return and get to his hotel before six o'clock, *and all this in one day*. Talk about variety! Why, one can have in Los Angeles or Pasadena, any thing he wants. He can go to the finest churches. If he is a theater-goer he will find the best and the worst in that land. If he wishes to see what there is bad in humanity he can have that desire gratified at Los Angeles. Any thing and every thing that goes to make up civilization, farm life, suburban life, city life—hot, cold, cool weather—all of these and more are to be had.

Speaking about saloons, I have never run through a town or city that was blessed or helped by their presence; and when I came into a no-saloon town I could always notice the quiet peaceful atmosphere pervading the place. This talk about saloons being necessary for taxes, for street-paving, and all that sort, is sheer nonsense. Paving! why, Pasadena has the best in the world. It even goes so far as to put up an elevated cycle roadway that goes for miles right over the streets, and right over every thing. One can go spinning in mid-air almost up to the foot of those great mountains.

THE UNION HIVE AND BOX COMPANY.

While I was staying in Los Angeles I made frequent calls at the factory of the Union Hive and Box Co., the largest bee-supply establishment in Southern California. It employs quite a force of men, and at the time of my visit the whole establishment, from office down, was heels over head in business. It is located right in the heart of the best bee country in California. Mr. Raze, the general manager of the concern, is an excellent business man, and a pusher. He, like nine-tenths of the other people of Los Angeles, is an Eastern man; but owing to ill health he went to the garden-spot of the world; and when I saw him, notwithstanding he was working overtime, and was straining every nerve to fill orders, he seemed to be the very picture of health. He came east again recently to the scenes of his boyhood days, and stopped at the Pan-American; but "the water" and "the climate"—this horrible climate that we poor mortals have out here—were too

much for him, and the last I heard of him he was going back to God's country, there to stay. The way he is telegraphing in orders for extractors, sections, etc., I assume that he is busier than ever.

Passing from Los Angeles I made my way up to see J. F. McIntyre and R. A. Holley, in the vicinity of Fillmore; but owing to the fact that certain of my pictures were not finished, as I supposed, I am obliged to make a jump, and skip these people temporarily, and drop down near Piru City, near which M. H. Mendleson has one of his celebrated apiaries, the Limekiln yard, about half an hour's drive from Piru. This apiary is located, as the name indicates, in the bottom of the Limekiln Canyon, or what I termed Rattlesnake Canyon, for Mr. Mendleson's men killed some seven or eight of those reptiles on the mountain-sides before I arrived; and I was constantly reminded to look out and not step on the beautiful pets.

The apiary as a whole is shown in Fig. 1; and of all the picturesque spots for a bee-yard, of the entire six thousand miles of my travels, I do not know of any more beautiful, or one more favorable for the production of honey, than this one right before us. The celebrated Sespe apiary, belonging to J. F. McIntyre, nearly equals it in its surroundings; but of this I shall have something to say later on.

I spent three or four days with Mr. Mendleson, "baching" it with him and his

men, and how I enjoyed it! The clear bracing mountain air gave me an appetite the enjoyment of which I shall never forget—the flap-jacks and other good things that Mendleson's bachelor cook spread before us could fill any "aching void." As the sun went down over those mountains the air would begin to turn cool, though it was almost July. Sleep! one could roll up under the bed-clothes, shut his eyes, and, presto! the sun would be smiling over the tops of those mountains again, for I slept late and hard.

As you will see by the pictures, I took several strolls with the camera and tripod over the vicinity. I clambered up, unbeknown to the boys, with the camera, and the first they saw of me I was hundreds of feet above their heads. A loud "hello!" warned me to look out for "rattlers," and I did. The tripod that I had was in the form of a pole that could be folded up, making a very respectable club or mountain-stick. With this I felt reasonably secure; but still I had a nervous fear that I might get bitten. Every now and then I would run into some prickly cacti or Spanish needle; and before I knew it I would be seized with a creepy horror of "snakes in my boots;" but the real creepy things I neither felt, saw, nor heard.

The Mendleson apiary is down in the bottom of the canyon. The ground was somewhat of a side-hill originally, and Mr. Mendleson himself, with a great deal of la-



FIG. 1.—APIARY OF M. H. MENDELESON, IN LIMEKILN CANYON.

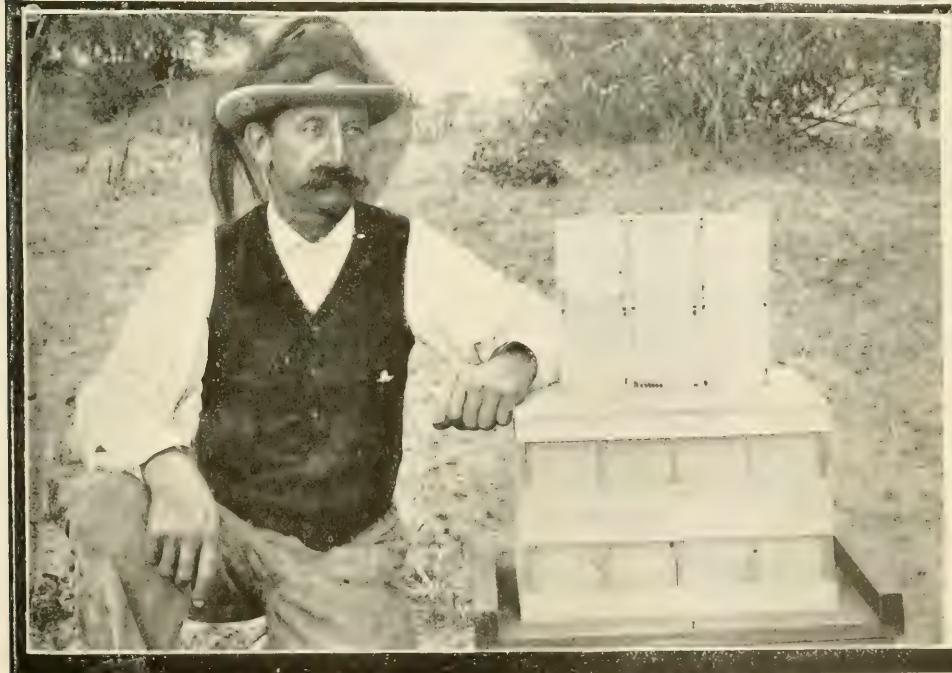


FIG. 2.—A CLOSER VIEW OF THE APIARY. MR. MENDLESON AND SOME OF HIS HONEY.

bor during that part of the year when bees were doing nothing, terraced off the ground so that it was as pretty as a picture. In the upper portion, Fig. 2, will be seen the straight rows. There would be from one to two lines of hives on a terrace. On the one above that, there would be another line or two, and so on clear up to the foot of the mountain.

This yard, at the time of my visit, I think had something like 500 strong colonies, and the bees were fairly booming. Twenty tons of honey had been taken off; but as the season was drawing to a close, only about five tons more would be taken.

Mr. Mendleson apologized for there being so many old hives he had bought up, but showed me a row of new Danzenbaker hives



FIG. 3.—MENDLESON AND ONE OF HIS DANZENBAKER HIVES.

which were devoted to the production of honey. By the way, you may guess who that fellow is in the foreground in the upper portion of Fig. 2. I had planned to take pictures of all the force employed at that yard; but the boys would not consent to any snap shot unless I would dress up in old clothes as they did. They were not going to have any city chap come to their canyon and photograph them in their every-day attire unless I would come down to a common level with them. As I wanted the fun and

"experience" of helping to extract and do some of the work in true California style, the boys kindly fixed me out in a suit of overalls and jumper. Notwithstanding they were clean, they were somewhat the worse for wear, and fit—well, you can see for yourself. I put them on; "and now," said the boys, "you look real handsome. Let's have your picture."

"All right," I said; "fire away."

As they took me in, I was taking in, as was my custom, the mountain scenery which I so thoroughly enjoyed.

The little patches seen along the mountain sides, not the larger bushes, were practically all mountain sage. Most of it was black sage, some white sage, and some button sage. But of these I will have something to say in our next issue.

MENDLESON'S COMB HONEY.

After the boys had "done me up" in the camera I took several shots of them; but, unfortunately, the pictures were poor. But I secured a very good representation of our friend Mendleson sitting down beside some of his honey. Nor was that the best—a picked lot—by any means. It was two or three cases taken at random and set down on the hives. I then requested Mr. Mendleson to sit down beside it, and the view is seen in the bottom of Fig. 2. This is all 4×5 plain sections, produced in Danzenbaker hives, for Mr. Mendleson seems to be an admirer of the Danzenbaker system, for comb honey. While he produces a great deal of $4\frac{1}{4}$ honey, he seems to be working over toward these beautiful tall boxes.

In Fig. 3 we get a view of how Mr. Mendleson tiers up his Danzenbaker hives for the production of comb honey; for he stands before one of these hives, in the act of removing the cover. Like many a bee-keeper he makes use of a broad-bladed putty-knife, as will be seen, for removing the cover, separating the frames, or for any work of that sort.

MENDLESON'S STORAGE-TANKS.

In Fig. 4 we have a view of some of Mr. Mendleson's ten or twenty ton honey-tanks. The extracting-house is shown over at the right. The pipes run from a strainer just under the extractor, and communicate directly with these tanks. In one of these tanks Mr. Mendleson had two feet of honey candied solid. The tank was six to eight feet deep, four or five feet across, and the problem was how to get it out. I clambered up on the sides and looked in. Said I, "The only way you can get it is to get down there yourself with a spade and dig it out, put it into pails, and then melt it up."

EXTRACTING BY STEAM POWER; THE TIRED YANKEE AND THE STEAM-ENGINE.

I said I desired to help Mr. Mendleson in true California style, and I did. To me was assigned the task of turning the crank of a six-frame Cowan extractor—one made by the Root Co. I did not know what was before me or I think I would not have been

so eager to jump into the work. Mr. Mendleson took off the combs, with the help of one of his men. The cook, Mr. Edmonson, did the uncapping, and I did the rest. After I had turned the machine for two hours I began to think there might be some easier job. I turned and turned, and puffed and blowed. The sweat ran down my nose in great drops. As Mr. M. came in with one load of honey I said to him, "Oh my!" for my breath was *almost* gone, "what is the matter of having a little engine to run this? What is the use of a man breaking his back when a quart of gasoline would run this all day?"

"I have had that in mind, Mr. Root, for some time," he said; "but I just wanted to put *you* at the job so that you people at

Co. has made arrangements whereby it can furnish a one-horse-power outfit, boiler and all, complete, to run any of these four or six frame extractors. The boiler can be used with gasoline, wood, or coal; and, what is more, steam is one of the handiest agents a bee-keeper can use. He can use it for rendering honey or wax, for cleaning utensils—in fact, it has a dozen and one uses; and, taking it all in all, the steam-outfit for the average person is far more suitable than a gasoline-engine.

HOW MENDLESON CONTROLS HIS BEE-RANGE.

Mr. Mendleson has about 500 colonies in his apiary, and about 250 at the bean-fields. The Newhall Brothers own about 49,000

acres, taking in all the land seen in the photo, and a great deal besides. This land has been purchased for the purpose of putting down oil-wells. In fact, right back of Mr. Mendleson's honey-house is a large oil-derrick. He has leased all of this 49,000 acres of land so that no one else can put a bee-yard down anywhere within bee-range of him.

Taking it all in all, Mr. Mendleson has an ideal location in one of the prettiest spots in the world, and has a contract that makes his bee-range secure so long as he desires to control it.

He has a modern honey-house, and all the conveniences for baching it in good California style.



FIG. 4.—MENDLESON'S HONEY-TANKS.

Medina could see the necessity of getting up a light, simple, one-half or one horse power—something that can be started and stopped readily, and yet make the combs spin good and hard."

"Yes," I said. "From what Mr. McIntyre told me it is not possible for hand power to generate sufficient centrifugal force to clean the combs as thoroughly as can be done with some sort of motor power. Then, too, the extractor might be running all the time that one was uncapping;" for it was easy to see, while I was turning the crank, that honey would keep flying in a spray off the combs, notwithstanding they were supposed to be fairly clean.

Ever since that, I have been revolving in my mind some sort of cheap power. A gasoline-engine would, perhaps, be the cheapest; but on account of its lack of control, starting and stopping, and unvariable speed to conform to new or old combs, it would hardly be as suitable as a water-motor, such as Mr. McIntyre uses, or a little steam-engine, the speed of which can be controlled by means of a throttle-valve. The Root

OPENING HIVES.

Some Good Orthodox Teaching Indispensable to the Beginner and Helpful to the Veteran.

BY G. M. DOOLITTLE.

Question.—I do not remember to have seen in the bee-papers an account of the proper way to approach and open a hive containing bees. I take it that there is a right way, and that the same methods should be used both in the East and West, locality cutting no figure in the matter. Of two bee-keepers here, Mr. A approaches a hive, stands a little to one side, and puffs a little smoke into the entrance; then, stepping to the rear, he gently lifts the rear end of the cover about an inch, blows a little smoke over the tops of the frames, lifts the cover entirely off, and drives more smoke down between the combs into the hive. Mr.

B's method is the same as above, with this exception: Just after puffing smoke in at the entrance, he gives the hive a sharp rap or two with whatever tool he may happen to have at the time, or even with his foot. Now, Mr. A claims that the kicking or rapping on the hive tends to anger the bees. Mr. B, on the contrary, claims that it alarms every bee in the hive and causes them to fill with honey, while by depending wholly on the smoke there might be some bees which would not get any of the smoke, consequently would be in good fighting condition by the time one got to manipulating the combs. Now, I should like your opinion of the above methods. Is either method correct? and, if so, which one? Is either one or both of them faulty? and if so, why? An answer through GLEANINGS would greatly oblige.

Answer.—I am very glad this matter has been brought up, for I find that there are very many in the bee-keeping ranks who do not understand just how to open hives; and I think the majority of apiarists use their bees much more roughly than is best for either themselves or the bees. I never could see just why the bees of *every* colony should have their eyes nearly put out, or their breath nearly taken away with stifling smoke, simply because some awfully ugly colony needs such a mode of treatment in order to subdue them, so that the apiarist can conduct some needful manipulation. So, then, we have a knowledge of each individual colony as the governing thought in our manipulating bees, rather than any method which allows us to treat each and every colony alike. If we do not know the temper of a colony we are about to approach, then we should go cautiously till we find it out. And after finding it out, then we are prepared to operate on that colony in just the same way every time, before each and every manipulation, so long as the colony keeps the same queen it had when we first found out its peculiarities. And, as our questioner says, this principle should hold good in any locality, whether it be north, south, east, or west. The idea of treating every colony alike, then, is the first fault, as I consider it, in both methods given.

The next fault, as I consider it, is the blowing of smoke in at the entrance every time *any* colony is manipulated. This I consider a waste of time, a waste of smoke, and a needless disturbing of the bees, taking 99 cases out of 100. And this applies to both methods, as both A and B do this. In my manipulation during the whole of the year 1901 I remember blowing smoke in at the entrance of only one hive, which I will speak of further on. Never do this unless you have an extremely ugly colony. Then in most cases it is a mistake to think, as does B, that *every* bee in a colony must be alarmed, and caused to fill itself with honey. This is entirely needless with the average colony, and causes not only a waste of time and trouble to ourselves, but is an

actual damage to the workings of any colony so treated. If close watch was kept it would be found that very few bees would go out to the fields within the next hour after a colony was so treated, to say nothing about the loss of time inside of the hive from this causing every bee to fill itself with honey, and then disgorge the same again, besides the uncapping of the cells by the bees in order to get at the honey, and the recapping of those cells again, after the honey is put back. Where any colony is procuring nectar at the rate of 10 lbs. a day I always considered it a loss of at least $2\frac{1}{2}$ lbs. to thus treat a colony for one manipulation; consequently I never do so unless I know that I am actually obliged to in order to perform some operation needed with an ugly colony. The kicking or rapping should not be entertained by any one except with the ugliest of all ugly colonies, and in such a case two or three kicks or raps are far worse than nothing, as it only arouses the ugly colony to the fighting point at the outset. Now, with this explanation, I doubt whether I can do better than to tell just what I do in my apiary. With the average colony, when manipulating the same, before the supers are put on. I take my lighted smoker with me, with my seat and tool-box combined. This latter is set down in the right place on the sunny side of the hive, so that the sun is at my back when seated, for the sun shining on any bee-veil very much hinders and obstructs the vision. The smoker is set on the ground close by. I now gently pry up the cover, or roll back the quilt, in accord with what the hive is covered with, placing the same within handy reach for replacing. I now proceed to manipulate the frames as I wish, using a little care in taking out the first one; for if there is any resentment it comes immediately on lifting the cover, or on the removal of the first frame. Afterward, when the light has been allowed on and in among the combs, no trouble is experienced unless you carelessly kill bees or roughly handle the frames. The manipulation over, I wish to close the hive, but find that, if the colony is at all populous, there are bees in the way of putting the cover on, which will be killed unless driven out of the way. I now pick up my smoker for using, for the first time, and gently blow smoke over the top of the hive, only just enough to cause the bees to run down out of the way, put on the cover, and go to the next hive. The bees have been working on all the time, just the same as though their hive had not been touched, even flying from the combs as I hold them in my hands, off to the fields, by twos or tens, as they often do. The next hive, I know, will not let me handle it as I did this first, without resenting it; so in this case, as I raise the cover I blow a little smoke under it (say two or three puffs), as soon as the cover is raised enough to stick the nozzle of the smoker under it. The cover is held thus for five to ten seconds, as this confines the smoke over the bees to

a certain extent, and causes the most of those on the tops of the frames to run down, when the cover is lifted. I now proceed as before, and, as a rule, use no more smoke till I come to the closing of the hive, when the bees are driven out of the way for closing up. If, at any time during the lifting of the first frame, or later on during the manipulation, some of the bees become restless and show fight, I gently puff a little smoke on these restless ones; but it is very rarely that I have to do this.

We now come to the colony which is known to be ugly—so ugly that it will drive every thing before it if we attempt to open it in the same way we have been doing with the others. And this is the one out of the 100 that I spoke of above. Here is where I use smoke at the entrance. After having decided that the loss from neglecting to manipulate such a colony will be greater than will be the loss from such a vigorous treatment, smoke is blown in at the entrance, sufficient to frighten the guards, when I begin to pound on the top of the hive with the doubled-up hand, say five or six blows. I now blow more smoke in at the entrance, for, if I do not, these vicious bees will be right out after me; and so I alternate smoking and pounding for from two to five minutes, or until I know that every bee is filled with honey, and all of the “ugly” is scared out of them. On raising the cover I find the bees mostly at the top of the hive; and if there is any black blood in them they are ready to stampe all over the hive, down under it, or anywhere else, which is very unpleasant, and thus the manipulation has to be done in a way not inviting to the manipulator, even though there is some satisfaction in knowing that you are master of the situation, and that with the ugliest colony ever dwelling in a hive. Even the most vicious Cyprians can be handled in this way. But, as I said near the start, with only one colony did I use this last treatment during the year 1901. All of the rest of my work with the bees, which was nearly all the time from May to October, Sundays excepted, was performed as given for the first two. After the supers are on I generally use the second plan with all colonies that I am obliged to manipulate, as it hastens matters by driving the bees out of the way which are between the stories or between the supers and the hive. But in all of my manipulations I use just as little smoke as possible with the accomplishing of the object sought.

In closing let me say that, with the exception of a colony or two, I never open hives unless there is something of importance to be gained by so doing. Each year I set apart one or two colonies to “play” with, or for the conducting of some experiment I may wish. These colonies are selected out from those which need no smoke, except in closing the hives, and are placed near by the entrance into the apiary, so that I do not have far to travel while experimenting, nor far for visitors to go to see

them. People who are afraid of bees, and yet desire to see the inside of a hive, are often offered from two to five dollars for every sting they receive, but as yet I have never had to pay any thing, although I often think I may, as these timid people often become so enthused and enchanted that they will thrust their fingers right in among the bees, not remembering that only a few moments before they were *sure* they would be stung if they went near them.

QUEEN-REARING.

Why we Should Rear our own Queens.

BY W. H. PRIDGEN.

Since the dawn of modern apiculture there has not been a time when there was the same interest manifested in queens and queen-rearing as now. The tendency on the part of honey-producers is, to a greater extent than ever before, to rear their own—not only because a larger proportion of those reared at home give better results than those transmitted through the mails, all else being equal, but because the essential conditions for the production of the highest type are more generally understood.

The cardinal points were given to the public years ago by men who spent much time and talent in experimenting; and by their persistent efforts the foundation was laid, not only for the most fascinating branch of our pursuit, but the most promising field in which to spend our thoughts and energies.

Bees are no longer regarded as bees without considering their qualities; but each progressive bee-keeper is continually on the lookout for superior honey-gatherers and other desirable traits shown by individual colonies.

The ability to rear our queens from the best mothers, and control their mating to some extent by weeding out and preventing the production of objectionable drones, and thus, step by step, make permanent improvements in the working qualities of our bees, not only increases our profits but lends enchantment to pleasure.

We are indebted to Messrs. Doolittle and Alley for the fundamental principles of what is termed artificial or scientific queen-rearing, who differ in some of the minor details. For instance, Mr. Doolittle uses artificial queen-cups to which he transfers the larvæ with a toothpick, while Mr. Alley prefers strips of worker comb containing eggs ready to hatch, over which the bees fashion the cells to their own liking.

As these veterans differ on some of the less essential points, so also do others differ with them, and consequently the subject is kept alive—short cuts devised, and modifications made by the lovers of the art.

In some of the manipulations, as much is accomplished in a few hours now as was formerly done in as many days; but what works perfectly in the hands of those who

conceive new ideas and adopt measures to carry them into effect, are often considered to be failures by others who have become proficient in more faulty methods with which they are acquainted, and hence the diversity of opinion as to the best or easiest way to accomplish certain ends.

Without these differences of opinion, and failures that lead to investigation, new ideas or the different ways of accomplishing the same thing would not come to light; and in going over the ground that has been covered by those who have contributed toward the success of modern queen-rearing, the object is to lend a helping hand toward a further advancement of the industry.

As a rule, the reader cares but little how, when, or from whom the writer gained his information, but generally prefers the part relating to the object in view; and inasmuch as it is generally known who advanced the different ideas that make up our queen-rearing system, in complying with the request for a more elaborate treatise on the subject these explanations will be omitted to some extent, without any intention of doing any one an injustice.

POINTS ON THE INTRODUCTION OF QUEENS.

From my experience in introducing queens by using bees from the colonies to which they are introduced, I consider the plan outlined by Mr. Bonney far superior to the usual instructions that accompany shipping-cages. In fact, I have not attempted to introduce one in years with the cage in which she is received without first releasing the escort and caging some of the bees of the colony with her, which invariably treat the queen kindly if very young, or have filled themselves with honey. It also works equally well if the queen be caged in an odorless cage without any bees, but still better to use the bees and odorless cage, or the odorless cage without the bees, first scented by allowing the queen to be superseded to remain in it an hour, in the hive; but I prefer scenting the cage with the old queen and then using the bees with the queen to be introduced, either by placing her in it and selecting the bees one at a time, or allowing them to go in, which they quickly do in search of their mother, and close them up for awhile, and then allow the queen to run in.

One advantage worth considering in having bees with the queen is that she is less liable to be damaged by the outside bees by getting hold of a leg or wing. I am partial to side-comb cages, as the queen is placed right down in the cluster; but instead of relying on hatching brood, young bees are at once put into the cage with the queen, through a hole near one corner, as large as a leadpencil. The hole is stopped a day or two with a cork, and with candy when the cork is removed, thus allowing the bees to release the queen, and combining the good points in the different methods. A great deal of this is too complicated for a novice,

and no doubt for that class the usual instructions are best; but before being too confident of uniform success by pasteboarding it should be remembered that, when queens are sent by mail, bees, cage, and all partake of the scent of the mails, and from this source much of the trouble arises, and there will not be the success that attends the same plan if the queen be changed to a fresh cage, thus removing much of the odor.

Bees will often destroy their own queen if given back after having been caged an hour or two with some of her own bees in a cage that has an odor that is transmitted to the queen.

Inasmuch as Dr. Miller was impressed by the fact that bees caged with a queen from a different colony were kind to her, I wish to say that, when robbers are bad, I often prepare a number of cages with escorts, by selecting the returning young bees that are taking their playspells, and find that it works well, as they always treat the queens kindly, are exactly the right age, and I have only to keep the nuclei open long enough to find the queen.

Creek, N. C.

[When Dr. Miller first spoke of this plan in his *Straw* (p. 680, 1901) I did not take much stock in it; but I am free to confess that there must be something in it after all. Caging the bees, and keeping them so until they have a real sense of their confinement or loneliness, no doubt puts them in a condition where they are ready to take up with *any* queen. When they are given back to the whole colony having the same scent, the new queen with them, all goes on lovely. But, as Mr. Pridden points out, it is doubtful if the beginner would be able to recage or change the escort. But the advanced bee-keeper may well give it a trial. I should be pleased to hear from others.—Ed.]



THE SWINSON JUMBO HIVE; SOME GOOD REASONS FOR ITS ODD CONSTRUCTION.

Mr. Root:—On page 232, in your footnote to my article on the Jumbo hive, you say, "This particular hive seems to violate all the principles laid down in hive-construction in modern bee culture." And, again, "Taking it all in all, I doubt whether the average bee-keeper in average localities would secure as good results in such a hive as those obtainable from the ordinary standard hive on the market."

In your first proposition you may be correct or you may not. That depends on what you term "modern bee culture." With me, Mr. Root, this hive is the "hive-construction in modern bee culture," there-

fore is in perfect accord with it, instead of violating it.

In the last proposition quoted, I think I can agree with you. "Another principle that has been laid down is that it is a mistake to give bees too much surplus room *at the start*." That is a principle that *has not yet reached* this section of the country. You can't give them too much room at the start in our section, nor in any other *warm climate* where the *surplus-honey* flow lasts only ten or twelve days, and bees store from 5 to 25 lbs. of honey per day, average 12 lbs. per day, for ten days. Why, I very seldom take off those large stories *during winter*. Most of my hives have to-day those large stories on them, some of them filled with sections, just as they stood last summer. I always give my colonies the full 112 sections some four or five weeks ahead of the honey-flow, and often do not have to raise even the *lower section-case*, as the bees enter both *about the same day*. Especially is this true if the surplus flow is a *little late and heavy*.

In 1898, from a hive having only six L. frames in the brood-chamber and twelve L. frames in the surplus-apartment, I got 71 L. frames built out and filled, inside of 16 days, with honey—something like 400 lbs. of extracted honey—by setting two surplus stories on top of a six-Langstroth-frame brood-chamber.

The bee-keeper here who uses a 24 or 28 section apartment on an eight or ten frame hive gets only about one-third or less of the honey crop as his share of the flow to each colony. I have just had cut 100 of those Jumbo hives, and expect to use the 15,000 sections (in addition to a number of Langstroth frames this season) I ordered of you in them for comb honey alone.

Our bees build out beyond the brood-chamber when honey is coming in freely. This may not be "long tongue-reach," but it is *building out right*—don't you see? They seem to have no regard for confining their storage to just the limits of the brood-chamber.

Our surplus-honey flow doesn't advance. It hops right on, and then, after a few days, it recedes to return another season.

ABBOTT L. SWINSON.

Macon, Ga., April 4.

[With your conditions of honey-flow it is easy to see why your hive is eminently adapted for your locality. This only illustrates the importance of each one studying closely his locality and then adapting himself to it.—ED.]

WAS IT FOUL BROOD? IF NOT, WHAT WAS IT?

The experiment with foul brood, by T. F. Bingham, calls to mind an experience of my own, except the mode of curing with sulphur smoke and the discovery of cure in my own case. About the middle of May, 1901, I discovered a colony superseding its queen. At that inspecting I could not detect any thing wrong, but those bees could. Imag-

ine my consternation, ten days later, on discovering a fully developed case of foul brood, answering in every particular to the description in my text-books. More than half of the brood was dead in different stages of development, but they had succeeded in hatching a nice young queen, and at the proper time she began to lay, sharing the burden of the old queen, both being present and laying. From this time on the percentage of dead brood was not as great—perhaps one in twenty. About the 15th of July they had become quite strong, and I thought I would clip the wing of the young queen. The old one had hers clipped. On putting her down the bees killed her. That left the colony with the old queen, and from this on the malady grew worse. I would say about two-thirds of the brood was dying. This gave me the cue. It was the old queen that was the cause. I supplied them with a new queen, and they cleaned up house and started in with new vigor, and the malady completely disappeared from that colony. I had one other colony affected in the same way, but it yielded to the same treatment.

The question now seems to be, "Did the sulphur smoke have any effect, or was it the new queen that did the work for Mr. Bingham?" Then, again, was it foul brood? I had come to the conclusion that it was not; and that the defect was with the queens alone.

The bees have wintered well with me on the summer stands, packed in winter cases. I lost one out of thirty. A. OLSON.

Annis, Idaho, April 22.

[Your surmise is, I think, correct. The malady, whatever it was, was due to some weakness of the old queen. It could hardly have been foul brood, for that disease, as we know, would not disappear on the removal of the queen.

Unless one has seen foul brood so that he is *sure* he knows it on sight, he might, from the descriptions or symptoms given in the books, mistake pickled or dead brood for it; then if he applied some mild remedy, conclude that that had cured real foul brood, when the other disease would, in the ordinary course of events, disappear of itself.

What the particular malady was which your bees above described had I can not say, unless it was pickled brood, and that sometimes disappears right speedily on a change of queens. In the absence of any further facts I should say what your bees had was a case of pickled brood pure and simple; for that does in fact look like foul brood, but differs in the ropiness of the dead matter.—ED.]

WINTERING IN A LARGE CELLAR.

I followed your plan of wintering in a small compartment within a large cellar. I wintered twelve colonies thus, and they are stronger at this date than any we wintered before—not a weak one nor one dead,

and very little spotting of the hives—not nearly as much as those I wintered out of doors. I built a small cage 4x4x4 ft., and covered it with three or four thicknesses of burlap. All the air the twelve colonies got was what would percolate through this. While the temperature in the main cellar (22 x 50 ft.) would vary through the winter from 39 to 48°, the temperature in the bee part never went below 41; usually it stood at 43 to 45, and ran very even. I never heard any roaring all winter. They were very quiet except when I opened the door; then one could hear a low murmur, which told me that they were doing well. The bottoms of the hives were removed, and they were raised up on two-inch blocks.

I have for a number of years wintered packed on the summer stands, with fair success; but I shall in the future winter in cellar as above, with more colonies.

The windows were opened occasionally all winter, but the fresh air from outdoors did not come in contact with the bees direct. I am very much pleased with this method of wintering so far. GEO. SHIBER.

Franklinville, N. Y.

GLUCOSE, AND WHAT IT IS.

I read much about glucose, but I don't really know what it is. Of what is it made, and what is it made for? It certainly must be made for some other purpose than for dishonest people to adulterate honey and perhaps other articles of food.

Tilleda, Wis.

S. A. R.

[Glucose is a mucilaginous kind of syrup of low sweetening power, made from corn. The ordinary commercial article contains so much sulphuric acid that is used in the process of its manufacture that it is not fit for any purpose as food. If glucose is used for any honorable purpose in the way of a legitimate food product in its real name, I do not know what it is. The industry for the manufacture of this corn syrup is very large. A great part of the product goes into the business of making beer (and I have about as much use for beer as I have for poison), and the rest of the product is used for adulterating syrups and honeys. Consumers will never buy it if they know what they are getting; and the commercial product is so vile when used in honey that it will disgust each consumer with all honey, if he thinks that honey is pure. A highly refined glucose is probably not unwholesome; but this article is too expensive to use for the purpose of adulteration.—Ed.]

WINTERING HIVES WITH DEAD BEES IN.

I have secured nine hives of bees in what I think are known as the Hilton chaff hives, containing 8 sections each of the Hoffman frames. The bees have been neglected, and on examining the hives I find the combs to be almost black. The upper half contains honey that seems granulated, and the lower half is empty, hard, and black. In each

case there are many dead bees in the bottom of the hive. Will the bees carry these dead ones out, or ought I to take them out? If so, how? What shall I do with the comb? I see from one of your books that you do not recommend the use of gloves. A sting on my hand causes unusually large swelling, and remains several days. What will be best for me to do aside from the advice not to get stung? A. N. HENNE.

Thompsonville, Mich.

[It is advisable to take a long slender wire with a hook on it, and rake all the dead bees out if there are some bees alive in the hive. If they are all dead, remove all the combs, brush them clean of the bees, turn the hives upside down, dumping the bees out; scrape the bottom-board and give it a general cleaning. Gloves are all right under certain circumstances, and in your case they would be indispensable. The bees will remove the honey that has granulated in the combs if you starve them to it. Better uncap and soak them in a tub of warm water, after which give them to the bees to clean up.—Ed.]

THE COMMISSION MEN AND LABELING COMB HONEY.

What you say in regard to D. I. Wagar, p. 293, labeling comb honey, certainly ought to have great weight. Why should we bee-keepers allow ourselves to be put on the back seats when we should have a front one? The berry-producer, the fruit-producer, the chicken-raiser, the flour-mills, and, in fact, every producer, has his brand on his produce, and even some of the commission merchants stamp their goods over with their own name and stamps. This I know to be a fact. Now, why not the honey-producer? I fully indorse all Mr. Wagar says in reference to this matter. Referring to your comment to Mr. Wagar, the consumer does not buy nor eat the name, nor is it one out of twenty who looks at the name unless the grades differ. Set two fancy articles side by side, having them just the same every way as a fancy grade of honey should be, the customer would as soon pay 20 cts. per lb. for Mr. B's as for Mr. A's. Why? Because they both come up to his liking. The commission men have an excuse that the name and address of the producer hurts the sale of their crop. Not a tenth as much as these comb-honey lies. They have an effect in two ways; first, they reduce the consumption of honey; second, they reduce the price (but not the value). What would be a better guarantee of pure honey than the name and address of the producer on the cases, with the standing offer of A. I. Root and others? These could be printed at a small figure, and should be put on every case, and a couple in the cases to get scattered around.

Let us try this thing, and stamp our produce as the syrup-producer does, and others. White-clover honey (if pure and true to name) is white-clover honey, whether Mr.

B's or Mr. A's. If all the money were put into labels instead of stamps and paper to write to the editors it would be better spent.

I am working right across a road from my house now, on a 20-acre fruit-farm. My bees came through strong.

Norwalk, Conn. ROBT. J. CARY.

LABELING COMB HONEY; THE COMMISSION MAN.

Suppose you are the commission man, and, while you would be making your fine little speech to the bee-man, you would be thinking, "If Mr. A puts his name on his honey, and my customer fails to get his honey from me, he will order it direct from A, and that commission will not jingle in my pocket." Would The A. I. Root Co. think of putting its goods on the market under no person's name as manufacturer? Why should the honey-producer? If the commission man will not handle his honey, the producer can get along better without him with his name on his honey than with him without his name.

W. R. MARTIN.
Hackneys, Pa., April 10.

HONEY FROM ALFALFA IN KANSAS.

Mr. Editor:—I notice on p. 179 that you and Dr. Miller claim that alfalfa does not yield honey except on irrigated land. I have been in the bee business for only three years, and my experience teaches me that, if it were not for our alfalfa here, grown without irrigation, we could do nothing with bees in this part of Kansas. We have some maple, elm, box-elder, willow, fruit-bloom; then we have locust and catalpa. This is all good feed for the bees. About May 20 the first crop of alfalfa comes in bloom; about July 1, the second; in September, the third; and all other crops yield a good crop of honey of excellent quality. As yet the alfalfa-fields are very limited, but are enlarged every year, as the necessity of a hay crop is very much in demand, and the crop is mostly cut before the bees get the full benefit from it; yet, dry as it was the past season, my bees made, spring count of 30 colonies, over 1500 lbs. of alfalfa comb honey. I knew there was no other bloom for bees to work on, and we have no irrigation here; yet there is honey from alfalfa here of a better quality than where it is irrigated, as it is much thicker and heavier.

J. J. MEASER.

Hutchinson, Kan.

SOME THINGS ABOUT PEAR-BLIGHT THAT ARE NOT EXPLAINED.

That pear-blight subject seems absurd. How is it a tree that never blossomed, 15 years old, all of a sudden turns black, and, of course, dies? I've had that experience. I've had dwarf trees, the second year from setting (no bloom), black about all over, have had apple branches black and die—no bloom either. I am very sure the bees have no part in it. We may as well charge potato-blight to bees. There was a time

when old farmers really thought bees blighted buckwheat; but it is generally settled that they are a help in setting more seed by the complete pollenizing.

The season and something unseen must cause pear-blight, the same as fungus, which is so troublesome in many ways. Being a fruit-grower and bee-keeper I have no biased idea one way or the other. I am sure bees are a great help in the cause of more fruit, to say nothing of the excellent sweets and the wonderful things otherwise. Superstition should have no part in the above subject.

E. P. CHURCHILL.

Hallowell, Me.

[See editorials in this issue.—ED.]

RAMBLER TAKEN TO TASK; EXTRACTING HONEY TOO GREEN IN CUBA.

As Rambler is down here in the interest of GLEANINGS we shall have to hold it responsible for his statements, and ask for more information through it regarding them; and I wish, like some of his other Cuban friends, to enter a protest against his saying that we extract our honey too green. That may be the case with some of those bee-keepers who use one hive-body to hold a day's uncappings. Now, I don't claim to sling nearly as much honey in a day as some of the writers in GLEANINGS; but I have days when my uncappings of one day will fill a Boardman solar extractor four times with all it can hold. Now, most of the honey here is still raised in the Cuban box hives. These are extracted from three to four times in a honey-flow of from six to eight months. How does Rambler make this fact tally with his statement of honey being extracted too green? Then he goes further and makes us veterans here feel in doubt whether to be sad or glad that we are not in Tulipan.

He does not tell us whether that colony, page 288, that gave 90 lbs. at one extraction, was extracted only one time during the honey season or once a week as is our habit of doing here. If only one time, then it is not much for Cuba with its 30-cent honey; but if that colony gave that at each extracting, then it sounds like a land agent's yarn to us veterans. Tell Rambler to be precise in his writings on Cuba, as we are very touchy in this new republic.

THE AMERICAN TRAMP.

Punta Brava, Cuba, Apr. 21.

CAGES FOR QUEENS DURING SWARMING TIME.

What kind of cage is used to cage the queen in the hive, and how is the caging done? I wish to prevent swarming by caging the queen. Do you send packing with the double-walled hive when you send the hive in the flat?

P. HUNTINGTON.

Norwich, Ct., April 2.

[Almost any kind of cage will answer for caging a queen in the hive. The Miller cage described in our catalog, page 29, is

about as good as any I know of. It is flat, and will go down between the frames, and has compartments for candy. An ordinary queen mailing-cage will answer in lieu of anything else. We do not send out packing with hives in the flat.—Ed.]

MRS. HARRISON'S FLORIDA LETTER.

West Bay is an arm of St. Andrews Bay, about fourteen miles from the town of St. Andrews Bay. The settlement of West Bay is composed of persons from Alabama who came seeking health, together with the fine fish and oysters which the bay affords. These people have displayed considerable energy in making for themselves homes in the wilderness.

We came here from St. Andrews in a small sail-boat, partly as a missionary tour, to see how the church and Sunday-school were thriving. We slept upon the boat, and early on that Easter morning I found my way to the school-house, and gave the small plantation bell one tap. The door was open, and upon the table was part of a Bible and an envelope from the Baptist Southern Convention.

I walked around, breathing the soft, warm, sweet southern air; gathered a bouquet of lovely ti-ti blossoms, yellow jessamine, laurel, and a plant said to be California sage. A friend who had seen it growing there said it was the same. The bees were thick upon it, and humming happily. This sage grows all around this bay, upon land close to the water.

I saw a high bench upon which were tall box hives, shaded with a grove of bay-trees. The hives were full, and running over, with bees clustering out upon the front. They were diminutive black bees. There was a small ti-ti back of this apiary, and the ti-ti bush was blooming, with its fragrant long white racemes hanging thickly from every twig. Over all the yellow jessamine ran at random, with its great clusters of yellow bell-shaped flowers. Truly these bees were in the midst of plenty on this Easter Sunday. I was told by a woman near these hives that comb honey sold there for five cents per pound!

Though it was so early in the morning, the whole town was in holiday attire; and on my inquiring about the Sunday-school I was informed that it had died out, but they were going to start it again. They had no preacher the past year, but one was coming next Sunday, and would come to preach once a month.

Soon the whole settlement gathered upon the pier—men, women, and children—and went upon a large fishing-smack, with her white wings spread, for a day of pleasure, and—I had no Sunday-school.

MRS. L. HARRISON.

West Bay, Fla., Mar. 30.

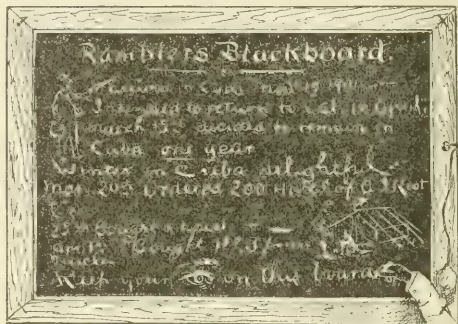
[I have been nearly all over the United States, but never yet have visited Florida. I hope the time will come when I may drink in the pleasures of which you speak.—Ed.]

In uniting two weak colonies by placing one hive on top of the other, do you leave both queens in to demonstrate the theory of "the survival of the fittest"?

LAURA S. ROSS.

Jefferson, O., March 18.

[Where one queen is as good as the other it is the practice to let the queens fight it out, on the principle of the survival of the fittest; but if there is a choice, then of course the bee-keeper should pick out the inferior one.—Ed.]



THE BEE-KEEPER'S HOPE.

BY HARRY LATHROP.

I wonder what the crop will be
Next season, Mary dear,
'Tis true we had to feed the bees
To help them out last year.

The spring was cold and backward too,
The bees could hardly fly;
And then the drouth of summer came,
And caused the flowers to die.

But after while some showers came,
Refreshing wood and field;
And that sweet clover in the lane
Helped out the scanty yield.

In summing up the season's work
We found the blessings counted
Outweighed by far the pain and loss
In all that time surmounted.

Thus we may gain from year to year,
From sales of bees and honey,
Enough to keep our credit clear,
As well as save some money.

There's much of toil and little gain
In thi-our occupation;
But we'll not envy those who aim
At larger compensation.

For God has given to mortals here
Great blessings without measure;
We have our share of right good cheer,
And much of sinless pleasure.

We hope for better luck next year;
'Hope' is the bee-man's refuge;
But luck is pluck, success means work,
It's been so since the deluge.

'Twas work that brought our first success;
Yes, work that first began it,
And work will finish well the day,
We may depend upon it.

So come along, companion dear,
We'll wait until to-morrow,
To bear the load of toil and care,
To-day no trouble borrow.



Blessed are the meek; for they shall inherit the earth.—MATT. 5:5.

Charity suffereth long, and is kind.—I. COR. 13:4.

But the wisdom that is from above is first pure, then peaceable, and easy to be entreated, full of mercy.—JAMES 3:17.

I have spoken several times of the spring on our place, away over at the further corner of our 40 acres, and over one-fourth mile from our "cabin"—the one that runs 300 barrels a day. Well, that spring, after running a few rods, gradually disappears in the black sandy loam and woods dirt, and this spot has always been covered with the rankest and most luxuriant vegetation. When I first saw it I declared I would some day clear it up and try it for celery, onions, etc. Not only did all kinds of wild flowers flourish here, but it was a regular thicket of maples, elms, ashes, basswoods, etc., from 1 inch to 6 inches in diameter. The huge stumps bore witness that at one time great trees flourished here; but they were all cut off years ago. We have just cleared up about half an acre about this spot.

On the morning before commencing the work, I remember asking God to prepare us for the trials and vexations that the day might have in store for us, and to give us the Holy Spirit in our hearts that we might disarm and drive out the evil one, should he come near and gain a foothold. My helpers were two boys, two men, and a splendid team of heavy horses. The small trees I have mentioned were cut off two or three feet up, and the big team then "yanked" them out with a stout log-chain. You may say this is a simple matter; but I very soon decided there was considerable science in pulling stumps, especially where there were so many small ones. A team heavy enough to pull a green elm four or five inches through is necessarily unwieldy, and should not be backed, or turned around any more than can be avoided. The owner of the team commenced by pulling one, then backing up to get the next close to it, and so on. Well, elm roots are sometimes a rod long; and when the team has hold of it they should, of course, go ahead until every long root is loose, so the boys can gather and get them out of the way rapidly. Now, the team must either back up this distance or turn around and go back, then turn about again. I suggested we pull alongside of a strip of stumps, so that, when the last root was torn loose, the chain could be quickly released, and without moving the team (or going back), wrapped around the stump that happened to be nearest. At the end of the row, turn about; do the same thing back again, or, better still, keep going round and round a "block" of stumps. After overcoming a great many objections to this "new departure" I got men and team to working nicely, and almost expected Mr. B.

to thank me for showing how to save the strength of the team, and his own, while he did almost double the work. When I came round an hour later, however, I heard, before I got in sight, the well-known yells of "Back! back! back!" indicating they had got back on the old plan again. I inquired what the trouble was with the new way, overcame the objections, and got them started right once more; but all day it was the same way. While I was near, every thing went on smoothly with no backing, or almost none; but when I was fairly out of sight they fell back in the same old "rut."

Now, friends, I know this is no new thing. The good wife has it over and over with the hired girl; and not only farmers, but every one who hires help of every kind, has more or less of it. Yes, I know very well that *sometimes* the hired man has the better head of the two, or perhaps knows his own business better than does his employer, but there is a world full of people who can't believe there is any better way than the one their fathers used or that the neighbors all around them use.

Well, during the second day, when Mr. B. was tired out, and the big team was tired out, and tired out, *too*, with so much yelling and "backing" (at least so it seemed to me), I got tired of so much waste of time and strength. Many of the little saplings were but little larger than a good-sized hoe-handle; but the great team must go through with the same program. I asked, as pleasantly as I could, why not work on the plan I had taught him. What do you think was one of his reasons? Why, he said his horses could not *stand it* to keep pulling stumps right along one right after the other.

I replied, "Very good, Mr. B., that may be true; but would it not be better to pull a few and then let the team stand still and rest? There certainly is not much resting for you or them either in backing or turning around every time you pull a sapling that one light horse might pull easily."

To tell the truth, I was getting somewhat provoked by such obstinacy, and *more* provoked by such philosophy. I fear I had forgotten my prayer of the morning, and forgotten, too, the beautiful admonitions in the texts at the head of this talk. Mr. B. was tired and nettled, because he saw my temper was coming up. He replied hotly:

"Well, Mr. Root, if my work doesn't suit you, you pay me off and get somebody else. I have worked very hard, and done the best I know how."

My hand went in my pocket for his money almost involuntarily; for, as a rule, with few exceptions, when a man asks for his pay and says he will quit, there is nothing to do but to pay him off. When my hand got down into my pocket I remembered my money was all left at the house, and I *also* remembered my prayer in the morning.

"Mr. B., it will be a piece of folly for you and me to quarrel now, after we have got along so nicely together. I don't want you to work any harder—in fact, not so hard.

My way is easier for you and for the team. We are almost done with this kind of work; shall we not go on?"

"But, Mr. Root, I have cleared up land all my life. I know how to do it. I don't quarrel with anybody. I worked for one man *ten years*."

"That surely speaks well for both of you; but I have several people now in my employ who have worked for me more than *twenty-five years*. Can't we go on and finish up?"

I was now feeling pleasant. My prayer of the morning had been answered; the Holy Spirit had regained possession of my heart, and had driven out the evil one. It was an easy matter now to laugh him out of his bad mood.

"Well, Mr. Root, if you know how, you take the team and go on," and he handed me the lines. I took them; but the heavy chain soon began to tell on my strength.

"Mr. B., I'll drive, and you *see* if I don't rest the horses; but you will handle the chain, won't you?"

At first he playfully declared it was my job, but finally took hold and worked with a will. Dear brother or sister, whose eyes rest on these pages, do you not see how much better was this kind of ending of a little disagreement?

If I had paid him off as I started to do, and let him take all his tools home (two miles away), and then got some one else to come away out here in the woods to finish a little job, what a piece of folly it would have been! and then, more than all, suppose I had tried to write a Home Paper in keeping with such a course—what would it have been like? and where would I have found texts to justify such a lofty pride, for pride it is, and nothing else, when you pay a man off in this way and let him go?

Since the above incident it has occurred to me that this foolish custom, or, better still, foolish *spirit*, has been, perhaps for ages past, entering, more or less, into the affairs of life. Not many years ago, if a man struck you a blow the world thought there was no honorable way out of it but to strike back, and perhaps fight a duel; and in some parts of Kentucky this is still kept up, until murder keeps following murder. If a man in the heat of passion calls you a "*liar*" you are to strike him down, or *try* to, even if it costs you your life. Where did we get such a code of morals? Surely not from the book where I found the three texts at the head of this talk.

Finally, is it not possible that the real germ and root of all of our labor troubles comes from this readiness, even under slight provocation, to get up on your dignity, and say, "Well, give me my money, and I will get out of your way"? or, "Here is the amount I owe you. I have no use for you any longer"?

Does anybody know how much it is worth in this world to have only kind words (and kind feelings) in parting with every one who has worked for you, even if it be for only a little while? Yes, sometimes we

do have to stoop a little; sometimes it is humbling to our pride; but is it not worth all it costs—nay, ever so much *more* than it costs, to be sure that all who know you have only kindly feelings toward you whenever they may hear your name mentioned? Can it be said of *you*, and said truthfully, "He 'suffers long, and is kind;' he is 'peaceable, easy to be entreated, full of mercy.'"?

DOES IT PAY TO HAVE A BAROMETER?

What, in brief, are the practical advantages of the barometer to hay-harvesters, herders on prairie, and outdoor people in general? Does the instrument forecast falling weather with reasonable accuracy, in your opinion? and usually how many hours, in advance, decided changes—as from dry to wet?

Trinidad, Col.

EDGAR SMITH.

Friend S., the advantages of a barometer to any one engaged in outdoor work, providing he takes a notion to the instrument, and consults it not only daily but several times a day, are almost beyond computation. A captain would no more think of sailing without a barometer than without a clock or compass. The instrument does, as a rule, forecast bad weather with accuracy; but we are usually unable to tell just how long it will be before the weather changes. If it continues to fall, and keeps falling, and the change does not come, you can be pretty sure there will be a fierce storm of wind as well as rain when it does come. In the same way, when it continues to rise, and we keep predicting fair weather that does not come, there is almost sure to be a long spell of nice weather after the storm has passed. One who is not acquainted with the instrument might get impatient, and say it did not amount to any thing. For instance, the women-folks ask me if they will need to carry their umbrellas when going up street. I sometimes reply, "I do not think you will need any thing of the kind. The barometer is running up fast, and the sun will probably be out in an hour or two." Well, the sun comes out, just as I said, but another cloud comes up, and we have what is sometimes called a "wind-up shower." You see, the barometer did not and could not give all these little minutiae of the finishing-up of the bad weather.

Another thing, a falling barometer means wind or rain. A big blow produces exactly the same result as a heavy rain; and no one can tell whether it will be a blow or rain, or *both* blow and rain. A sudden change in the weather from warm to cold or from cold to warm also influences the barometer, and may bring about different results from what we should have if the temperature had remained about the same. All these things must be learned by carefully watching the instrument; and even then no one can tell *exactly* what is going to happen. Sometimes a barometer indicates rain, and we have only a thunder-cloud and every appearance of rain. Still another thing, a thunder-shower a mile or two away will

affect the barometer in your locality. At the time of the tornado in St. Louis our barometer dropped so much that I told the people in our neighborhood that either my machine was broken or there was a tremendous tornado going on somewhere. By the time the papers reached us the barometer had begun to travel back to its usual place, and then I knew the reason of the tremendous drop of the mercury.

Now, lest this should sound very much like an advertisement of the instruments we have for sale, permit me to add that, unless you are going to have time and inclination to watch the instrument closely, and keep it on your mind, it may not pay you to have one. I left one quite a spell with a friend of mine. After several months' use, or perhaps I should say neglect, he said they did not look at it any more at all, because it was "no good." I took it home and hung it up in our "cabin," paying little attention to it, because I supposed it was out of order. Finally, after we had had so many rainy days that I did not have much else to do, I began to watch that neglected instrument; and then I discovered it did its work just as well as my old machine at home, only the field over which the needle traveled was a smaller one. It went up and down in obedience to the changes of the atmosphere, but it moved only a little way up and down. The aneroids are not alike in this respect. Some of them have a good long swing, and others vibrate over comparatively small spaces. By the aid of the barometer we have harvested our crops, both hay and grain, and got them in safely, season after season, while neighbors with no barometer had repeated disasters.

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We want to add a lot of new readers to our WEEKLY AMERICAN BEE JOURNAL list. For that reason we are making those who are not now reading our journal regularly, this liberal offer: Send us \$1.30 and we will mail you the Bee Journal for a whole year, and also one of our WARRANTED LONG-TONGUED RED-CLOVER QUEENS—untested Italian.

We have arranged with one of the oldest and best queen-breeders (having many years' experience) to rear queens for us this season. His bees average quite a good deal the longest tongues of any yet measured. The breeder he will use is direct from Italy, having imported her himself. Her worker-bees are large, somewhat leather-colored, very gentle, and scarcely requiring veil or smoke. They stored red-clover honey last season. All queens guaranteed to arrive in good condition, and all will be clipped unless otherwise ordered. They will be mailed in rotation, beginning about June 1st, so "first come, first served."

Headquarters in Chicago for Root's
Bee-supplies at Root's Prices. . . .

A free catalog and a sample of the American
Bee Journal on request.

George W. York & Co., Chicago, Ill.
144-146 Erie Street.

Did You Know That

the Long-tongue Red clover Queens are in the lead? Orders are ten to one in their favor. Untested queens after May 1st, 75c; 6 for \$4.50; 12 for \$8.00; 3-frame nucleus and untested queen, \$2.75. We are now ready to fill all orders by return mail. Send us your orders and see what fine bees and queens you will get. Order from this advertisement and save correspondence.

PRESTON STORE & BEE CO.,
Dority, Preston Co., W. Va.

10 CENTS

That's all it costs to get acquainted with the

Rocky Mountain Bee Journal.

We want to send it on trial to every reader of *Gleanings Three Months for 10 cts.* This vigorous young monthly has just entered its second year on a paying basis, and has become the recognized mouthpiece of the bee-keepers of the great Rocky Mountain alfalfa regions. Address

The Rocky Mountain Bee Journal,
Box 611, Boulder, Colorado.

HONEY QUEENS.—Bred from the Laws strain. Orders being booked for untested and tested queens. Select tested, \$1.50; breeders, \$2.50 to \$5.00. None better. H. C. TRIESCH, JR., Dyer, Ark.

Queens!

Buy them of H. G. Quirin, the largest queen-breeder in the North. The A. I. Root Co. tells us our stock is extra fine. Editor York, of the *American Bee Journal*, says he has good reports from our stock from time to time, while J. L. Gandy, of Humboldt, Neb., has secured over 400 lbs. of honey (mostly comb) from single colonies containing our queens. We have files of testimonials similar to the above.

Our breeders originated from the highest-priced long-tongued red-clover queens in the United States.

Fine queens, promptness, and square dealing have built up our present business, which was established in 1888.

Price of Golden and Leather-colored Queens Before July First.

	1	6	12
Selected Warranted.....	\$1.00	\$5.00	\$9.50
Tested.....	1.50	8.00	15.00
Selected Tested.....	2.00	10.50	
Extra Selected Tested—the best that money can buy.....	4.00		

We guarantee safe arrival to any State, continental island, or any European country. Can fill all orders promptly, as we expect to keep three to five hundred queens on hand ahead of orders. Special price on 50 or 100. Circular free. Send all orders to

Quirin the Queen-breeder,

Post and Money-order Office, Parkertown, Ohio.

TEXAS QUEENS!!



From the Lone Star Apiaries. G. F. Davidson & Son, prop's, have made great preparations for the coming season to accommodate their many customers with either Long-tongue, Imported Stock, or Golden Queens. They have bought out the queen-rearing business of O. P. Hyde & Son, Hutto, Texas, and by buying and increasing their

number of nuclei, they are better prepared than ever to cater to the trade of the bee-keeping public. One of Root's Long-tongue Breeders; Imported Stock direct from Italy; Golden from leading queen breeders. Fine breeders of each of the above have been added to their yards. Safe arrival and satisfaction guaranteed. Send for queen circular and price list. We are now prepared to fill orders for Cyprian and Carniolan queens. Good strains. Address

G. F. Davidson & Son, Box 190, Floresville, Texas.

A VOICE FROM ITALY!

Pure Italian Queens can be supplied at 10 shillings each. Write in English, French, or Italian, and address Malan Bros. (Waldensian Valleys), Luserna San Giovanni, Italy. Our motto: "Do unto others what you would like to be done to you."

Transferring Larvae is Unnecessary if you use the Swarthmore plan of cell-getting. Queens will lay eggs directly in compressed cups. Each cell is quickly removable from outside without smoke, without disturbance to the bees, without opening the hive simply raise the lid and draw them. Order a Grace Cell-compressor and have it on hand—\$2.00 by mail. Queens now ready. Address The Swarthmore Apiaries, Swarthmore, Penn.

HONEY QUEENS!

Laws' Long-tongue Leather Queens.

Laws' Improved Golden Queens.

Laws' Holy Land Queens.

Laws' queens are the standard-bred queens of America. The largest honey-producers use them and praise them. Laws' queens go everywhere, and can furnish you a queen every month in the year. Four apiaries. Queens bred in their purity. Prices, October to April: Tested or untested, \$1.00 each; 6 for \$5.00. Breeders, none better, \$3.00 each. Address

W. H. Laws, Beeville, Texas.

Italian Queens in the State of Washington

Untested, \$1.00; tested, \$1.50. In June, 25 cts. less for either. I raise all my queens by swarming method. You can't get better queens. Write in time. Address Robert Mirring, Dryad, Lewis County, Washington.

ROOT'S GOODS

IN CENTRAL MICHIGAN. Best goods; best shipping-point; cheapest place to buy in state. Try me. List. W. D. Soper, Rt. 3, Jackson, Mich.

If You Want Root's Goods

we have them at Root's prices. Also A B C in Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

D. Cooley & Son, Kendall, Mich.

Do You Read the Modern Farmer?

If not, why not? Perhaps you have never seen a copy. If not, send for one now—it's free. *Send us 10 cents and the names and addresses of five farmers and we will send you the paper one year.* Clubbed with this paper. Write for price. Address

MODERN FARMER, - St. Joseph, Missouri.

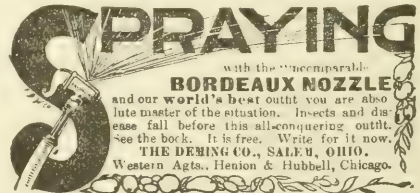
Minnesota Bee-keepers' Supply Mfg. Co.,

Manufacturers of

Bee-hives, Sections, Shipping-cases, and Everything Used by Bee-keepers.

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

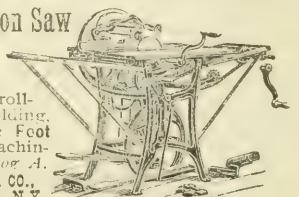
Minnesota Bee-keepers' Supply Mfg. Co., Nicollet Island Power Building, Minneapolis, Minn.



Union Combination Saw

For Ripping, Cross-cutting, Rabbering, Mitering, Grooving, Gaining, Doring, Scroll-sawing, Edge-moulding, Beading, Pull line Foot and Hand Power machinery. Send for catalog A.

SENECA FALLS MFG. CO., 44 Water St., Seneca Falls, N.Y.



SPLIT HICKORY VEHICLES

We put our honor against yours. If you want a new buggy or carriage this season, and would like not only to see it set up, but to use it and satisfy yourself that it is a bargain, we will ship you one on

Thirty Days' Free Trial.

We believe our Split Hickory Vehicles are the best on the market at any price, and we believe you will give them a fair trial. If after thirty days you are not satisfied, return them to us. There will be nothing to pay. All this is fully explained in our new illustrated catalogue, which is free. Besides vehicles it shows a full line of harness.

OHIO CARRIAGE MFG. CO.,
Station 27, Cincinnati, Ohio.

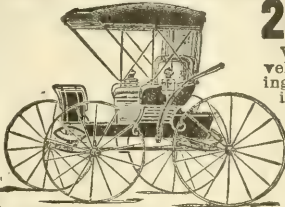


29 YEARS SELLING DIRECT.

We are the largest manufacturers of vehicles and harness in the world selling to consumers, and we have been doing business in this way for 29 years.

WE HAVE NO AGENTS

but ship anywhere for examination guaranteeing safe delivery. You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness. Our prices represent the cost of material and making, plus one profit. Our large free catalogue shows complete line. Send for it.

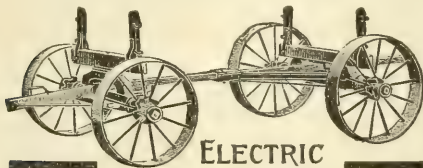


No. 391 Buggy. Price, \$69.00. As good as sells for \$25.00 more.



No. 740 Open Stanhope. Has 74 inch Kelly rubber tires. Price, \$82. As good as sells for \$50 more.

Elkhart Carriage & Harness Manufacturing Co., Elkhart, Ind.



ELECTRIC

Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not sink into the ground; the labor of loading is reduced many times because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons? We make our steel wheels to fit any wagon. Write for the catalog. It is free.

ELECTRIC WHEEL CO., BOX 95, QUINCY, ILL.

"A Gold Mine On Your Farm"

is the title of the most complete and comprehensive illustrated Treatise, on the subject of spraying, with tables of costs and formulae. The result of actual use at the leading Agricultural Experiment Stations, tells of the SPRAMOTOR, the "Gold Medal" machine at the Pan-American. 84 copyrighted pages. We mail it free. Ask for it.

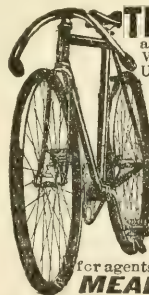
SPRAMOTOR CO.,
Buffalo, N. Y. London, Can.

Barns

Barns of plank save timber and cash. Neatest, cheapest, strongest, most desirable. 5000 in 12 States. Tested for 20 years. Indorsed by agricultural colleges and scientific men. Book for stamp.

Shawver Brothers, Bellefontaine, Ohio.

SEA-SHELLS from the Gulf of Mexico. Send 15c to G. S. Warner, Palma Sola, Manatee River, Florida, and receive a sample package of 12 sea-shells.



TEN DAYS FREE TRIAL

allowed on every bicycle purchased of us. We ship on approval to any one in U. S. or Canada, without a cent deposit.

1902 Models, \$9 to \$15

1900 & '01 Models, best makes, \$7 to \$11

500 Second-hand Wheels

all makes and models, good as new, \$3 to \$8. Great Factory Clearing Sale at half factory cost. Tires, equipment, & sundries, all kinds, 1/2 regular price.

RIDER AGENTS WANTED

in every town to ride & exhibit sample 1902 model. Agents make money fast.

A BICYCLE FREE

distributing catalogues in your town. Write at once for agents' net prices and our special offer.

MEAD CYCLE CO. Dept. 357M CHICAGO, ILL.

BETTER THAN SPRAYING.

Don't lug barrels of water around when spraying. Use the poison direct. Our

Common Sense Dust Sprayer

and Insect Exterminator is a most ingenious device that is rapidly supplanting the old methods. It blows the finely powdered dust into every nook and crevice. Reaches the bottoms as well as the tops of leaves. Destroy insect life on plants, vines, shrubs and trees. Just as effective for vermin on poultry and pigs. More rapid than spraying. Descriptive circulars and testimonials free.

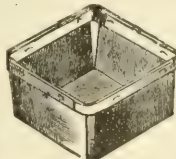
HILLIS DUST SPRAYER CO., Box 17, ST. JOSEPH, MO.

Fruit Packages of All Kinds.

— ALSO —

BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address



BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.

Advanced Bee Culture

Is a book of nearly 100 pages (the size of the Review) that I wrote and published in 1891; and I will tell you how I gathered the information that it contains.

For 15 years I was a practical bee-keeper, producing tons of both comb and extracted honey; rearing and selling thousands of queens, reading all of the bee books and journals, attending conventions and fairs, visiting bee-keepers, etc., etc. Then I began publishing the Review, and, for several years, each issue was devoted to the discussion of some special topic, the best bee-keepers of the country giving their views and experience. **ADVANCED BEE CULTURE** is really the summing up of these first few years of special-topic numbers of the Review; that is, from a most careful examination of the views of the most progressive men, and a thorough consideration of the same in the light of my experience as a bee-keeper, I have described in plain and simple language what I believe to be the most advanced methods of managing an apiary, for *profit*, from the beginning of the season through the entire year.

A new and revised edition, which includes the improvements of the past ten years, will be out June 1st. It will be as handsome a little book as ever was printed. The paper is heavy extra machine-finished white book, and there will be several colored plates printed on heavy enameled paper. For instance, the one showing a comb badly affected with foul brood will be printed in almost the exact color of an old comb. The cover will be enameled azure, printed in three colors.

Price of the book, 50 cts. The Review for 1902, and the book for only \$1.25. You can send in your order now, and the back numbers of the Review for this year will be sent at once, and, as soon as the book is out, a copy will be mailed you.

W. Z. Hutchinson, Flint, Michigan.

Business Bees!

Are the kind you want for honey. We have them in our select five-band strain. J. F. Atkins, Reno, Nev., has been buying several dozen queens a year—last year 180; have his order for 100 in April. F. L. Craycraft, Havana, Cuba, bought about 200 in fall of 1900; also 100 last April; has placed his order for 100. These men are large honey-producers. They know what they are about. We are better prepared than ever to handle orders. Prices: Untested queens, \$1.00; dozen, \$9.00; after May 1st, \$8.00; tested, \$1.50; select, \$2.00. Send for circular. J. B. Case, Port Orange, Fla.

VANDE VORD rears Golden queens from the best honey strains; untested (from an extra choice Doolittle breeder) \$1.00, or 3 for \$2.25; tested, \$1.25 each. Geo. J. Vande Vord, Daytona, Fla.

PAGE & LYON, New London, Wisconsin.

MANUFACTURERS OF
AND DEALERS IN . . .

BEE-KEEPERS' SUPPLIES. . . .

Send for Our Free New Illustrated
Catalog and Price List.

TAR HEEL APIARIES.

Abbott L. Swinson, Queen-specialist in Charge. Orders filled now. For nuclei, 75c per L. frame—add price of queen. Bees, \$1.00 per lb. Warranted queens, \$1.00 each; \$10.00 per dozen. Tested, \$1.50. Breeders, \$5.00. We have 300 colonies of best American albino Italians and Adel bees. These bees have no superiors in the long-tongue or any others.

SWINSON & BOARDMAN, Box 358, Macon, Ga.

MICHIGAN

HEADQUARTERS FOR

C. B. Lewis Co.'s Bee-keepers' Supplies, Dadant's Foundation.

We have the largest stock of supplies in the State. Can ship on one day's notice. Send for our 48-page illustrated catalog and give us a trial order.

L. C. Woodman, Grand Rapids, Mich.

HONEY QUEENS FROM TEXAS.

I can furnish queens of 6 different races, all bred in their purity in separate yards from 6 to 25 miles apart. Untested queens, 75 cts. to \$1.00 each. Tested queens of either race, \$1.50 to \$3.00 each. Breeders, \$3.50 to \$5 each. Bees by the pound, and 1, 2, and 3 frame nuclei a specialty. Prices cheap. Quoted on application. Price list free. Will Atchley, Box 79, Beeville, Bee Co., Tex.

YES, SIR!

The MUTH'S SPECIAL Dovetail hive is a CRACKERJACK. COVER and BOTTOM are absolutely warp-proof. We know because we are practical. Our illustrated catalog explains it all. You can have one by asking. Not a hive left over from last season. We sell the finest supplies at manufacturer's prices.

STANDARD BRED QUEENS. None better than our Buckeye Strain of 3-banders and Muth's Strain Golden Italians. 75c each; 6 for \$4.00. Safe arrival guaranteed.

THE FRED W. MUTH CO.,

FRONT AND WALNUT.

CINCINNATI, OHIO.

Root's Bee-supplies

for the South Atlantic
States at Root's Prices.

**Quick Shipments and
Low Freight Rates.**

We call your attention to our one-horse Winner Wagon, Star Forcefeed Wheelbarrow Clover-seeder, Pea-threshers, and the Buffalo Pitts Harrows.

We also carry a full line of the most approved Farm Implementments, etc. Send for catalog

Rawlings Implement Co.,

209 South Charles Street,
Baltimore, - - - Maryland.

NONE BUT THE BEST QUEENS ARE GOOD ENOUGH FOR ANY ONE.

No bee-keeper wants to give hive room to inferior bees. The best queens fill their hives with brood. The best bees fill their supers with honey. Every bee-keeper knows this, but does not know that *our strain* of Italians are in the *lead*. Try them. You will not be disappointed. Choice tested queens, \$1.00 each. Untested, 75c; \$8.00 per doz. Send for price list.

J. W. K. SHAW & CO., Loreauville, La.

POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts, if you mention Gleanings (reg. price, 50 cts). Inland Poultry Journal, Indianapolis, Indiana.

DON'T BUY SUPPLIES!

Until you see our 42d annual catalog. A full line of hives and fixtures best adapted to our New England Climate. Also best brands of COMB FOUNDATION and SECTION BOXES. We have also made arrangements to keep a general stock of

**THE A. I. ROOT COMPANY'S
GOODS AT THEIR PRICES!**

Parties desiring these goods can get them of us, and SAVE FREIGHT CHARGES. Bees, queens, and nucleus colonies from the VERY BEST STRAINS in America. A 40-page illustrated catalog sent free.

W. W. Cary & Son,

LYONSVILLE, MASS.

White Wyandottes!

Bred from Duston's best. Stock and eggs for sale in season. Satisfaction guaranteed.

J. F. MOORE, : TIFFIN, OHIO.

BELGIAN HARES!

With every hare sold goes a full pedigree, register number, and score-card, scored by an official judge. Does will be bred to one of our famous high-scoring bucks from Write for book. Mgr. of The A. I. Root Co.

J. B. MASON, MECHANIC FALLS, MAINE.





HONEY.

Those in need of extracted honey will do well to send for samples and prices. We have choice California and Jamaica to offer in 60-lb. cans.

SECOND-HAND FOUNDATION MILLS.

We have in stock quite a large lot of second-hand foundation-mills in all sizes and at various prices. If any of our readers are interested we shall be pleased to submit samples, with prices and descriptions of the machines we have to offer. If you have any choice as to size or grade of foundation you wish to make, let us know it when you write.

COMB FOUNDATION ADVANCED.

We call attention again to the advance of 3 cts. per pound in price of comb foundation, which was made April 22, and announced in last issue of GLEANINGS. All manufacturers and dealers have made the advance, so far as we have been informed, and the reason for it is the increased cost of beeswax. We are receiving wax in good volume, and have a fair supply on hand. We are paying 29 cts. cash, 31 cts. trade, delivered here for average wax.

BUSINESS BOOMING.

We have not as many unfilled carload orders as we have had; but those still unfilled are more urgently needed than at any time yet this season, judging from the reports we get from the dealers who are waiting to receive the goods which will enable them to fill their orders. All orders now in hand we expect to have filled by or before the end of this month. We have been obliged to decline orders for several carloads because we could not ship them promptly and we would not put them ahead of other orders already entered. We hope the supplies for which there is at present such a brisk demand will be needed and used up this season. Indications generally are favorable, although in this section the weather continues cool.

MACHINISTS WANTED.

We are in need of several men of some experience in the use of iron-working tools. We have during the past year, installed in our machine department over \$3000 worth of new tools in charge of a new foreman well posted in the latest methods of tool-making and machine construction, and he could use to advantage several additional men of experience on new work which we have laid out to do. We require men familiar with the use of lathes drill-press, shaper, planer, milling machine, and bench tools. If any of our readers know of such men desiring a change, and who would like to work in an institution like ours, in a small town the equal of any in the country to live in, we should like to hear from them with references as to character and experience; the length of time engaged in such work, and somewhat of the nature of the work done, etc.

SACK FOR HOLDING SEED POTATOES, TO GO WITH THE HAND PLANTER.

We have just received from L. L. Olds, Clinton, Wis., a seed-sack for carrying cut seed-potatoes, that is a great improvement over the sack in common use. A steel hoop holds the sack open enough to get the hand in easily, and three rather ornamental bands support it easily so as to rest on both shoulders. After having it tested in the field, I think such a sack might save almost the price of it in planting one day. Price 40c; by mail 25c extra. We have them in stock ready to ship.

BEES AND QUEENS.

In connection with and directly adjoining our large manufacturing plant we have an apiary of 600 colonies; and this is further supplemented by an out-yard of 150 more. Nearly all of these 750 are devoted to the rearing of high-class honey queens or queens for business. In charge of this department we have a queen-breeder of some 30 years' experience, careful and competent, and one who uses the latest and best methods for producing vigorous healthy stock. None but honey queens

are used for breeders (usually imported) — queens whose progeny have excelled every thing else in the yard. Some of them are from our celebrated imported red-clover mother, the bees of which will excel any thing else in the yard during the time that red clover is in bloom. Then we have a breeder whose bees stored 160 lbs. of surplus from clover and basswood in a yard where there are already 650 colonies. A colony that can store as much honey as that in a locality so greatly overstocked is something remarkable, and hence the queen has been set apart as a breeder.

On account of the intrinsic merit of breeding stock and the pains we take in rearing our queens, we are compelled (to prevent being swamped with orders) to charge a slight advance over ruling prices.

PRICES OF RED-CLOVER AND HONEY QUEENS REARED IN THE ROOT CO.'S APIARIES, AT MEDINA, O.

Untested queen	\$ 1 00
Select untested queen.....	1 25
Tested queen	2 00
Select tested queen	3 00
Breeding queen	5 00
Select breeding queens.....	7 50
Extra select breeding queens, 1 year old..	10 00

Be sure to specify whether you desire a "red-clover" or a "honey" queen. The first-mentioned stock is bred for red clover; the last-named, or honey queens, show up well during an ordinary honey-flow from clover and basswood. We can not furnish these queens before May 15 (untested before June 1st) nor later than Nov. 15th. We are booking orders, and they will be filled in their season in rotation.

COMMON ITALIAN QUEENS.

For those who desire to get pure Italian stock at a moderate price we are prepared to furnish queens direct from our breeders in the South, or from our own yards. These queens may be just as good as our higher-priced stock. Some of our Southern breeders use our breeding-queens, and others use some of their own choice breeders.

Untested queens	\$ 75
Select untested queens.....	1 00
Tested queens.....	1 50
Select tested queens	2 50

PRICES OF NUCLEI.

One-frame nucleus, without queen.....	\$2 00
Two-frame nucleus, without queen.....	3 00
Three-frame nucleus, without queen.....	3 50
One colony of bees in 8 frame Dovetail-hive, without queen.....	7 50

We can supply with the nuclei any of the queens mentioned in the table of prices of queens. When one buys an extra select queen or any high-priced queen he would do well to have her come in a nucleus. This will insure safe arrival, and do away with the hazard of introducing.

Convention Notices.

CENTRALVEREIN FÜR BIENZUCHT IN OESTERREICH.

An International Exhibition in Bee-keeping will be held at Vienna, on the festival of Easter, 1903, arranged by the Central Association of Bee-keepers. It is intended to exhibit bees, hives, instruments, products, books, etc. Information can be received from the Centralverein fuer Bienenzucht in Oesterreich, at Vienna, Austria, I. Schauflegasse, No. 6.

Kind Words from our Customers.

GLEANINGS will be the last paper I shall ever stop taking. God will bless you, Mr. Root, as long as you write such good Home talks. C. G. TURNER.
Mechanic Falls, Me.

A DANGEROUS COMBINATION.

In reading the Tobacco Column in GLEANINGS I was surprised to learn that you employ a boy who uses cigarettes. I consider them a dangerous combination; but I think you manage your business all right without my advice. S. H. HOUGH.
Saybrook, O., Apr. 7.

Please find inclosed \$1.00, for which give me credit. I don't know that I have any excuse for not sending the money at the proper time, only neglect. A. I. can go for me if he wants to; in fact, I rather enjoy hearing him go for delinquents of various kinds. I have taken GLEANINGS ever since Huber and Blue Eyes were kids, as they call them now. I expect to take it as long as I live or am able to read. I devour it from beginning to end, advertisements and all, some of it two or three times.

WILLIAM COX.

Viroqua, Wis., Apr. 7.

Bro. A. I. Root:—I feel it a duty and a pleasure to tell you how much I appreciate your Home Talks. The Lord only knows the good they will accomplish. The article on the serpent's beguiling was timely and well presented. A young pastor who was preaching grand sermons was floundering in his toils, leaving a devoted wife at home, and spending his time in another's company. I handed him your article, gave him a plain talk, for which he thanked me. I hope he will profit by it. Your faithful stand for *righteousness* in these days of deception is worthy of high commendation. I am yours in Christ.

Dear Brother in Christ:—Since walking with you in Home talks I have been strangely drawn to you, perhaps by the

Sacred tie that binds

In sweet communion kindred minds,

so that, on receipt of GLEANINGS, the first article we look for is our Homes. Some ten years ago I had the grip, which left me with bronchial asthma, which compels me to reside up here in the mountains (elevation 2700 feet). In our seclusion we often think of you in your cabin in the woods. We are 27 miles from any church, so your Talks are read first. I can't say they are strictly bee-journal literature, but they do tend to extract the stings of conscience (for instance as related by you on page 651); for who of the best of us but has felt the twinges that inward monitor has given us when we have said or done something tending to grieve the tender, loving heart of Him who died that we might live? So, dear friend, keep on in the good old line you have taken up, and verily you shall have your reward, for those who turn many to righteousness shall shine as stars, etc.

Alpine, Cal., Mar. 16.

E. P. ST. JOHN.

ONE WHOLE YEAR OF FREEDOM FROM BONDAGE.

Mr. A. I. Root:—I feel it a duty, on this the first anniversary of my emancipation, to write you and thank you for the part you have taken in freeing me from tobacco slavery. For twenty-five years I was a slave to the weed; and no despot ever wielded a more tyrannical influence over menial than it did over me. It had crept inch by inch, into my very nature until it seemed a part of my life. At the time of my emancipation I was using $\frac{1}{2}$ lb. of the blackest and strongest I could buy, each week; no other kind satisfied me. I was to be found at all times, if not eating, sleeping, or at church, with either a chew or the pipe in my mouth. It had impaired my nerves to a frightful extent, and had partly destroyed my powers of digestion. I had been for a long time able to digest but little fat of any kind at a time; and what fat I did eat I had to eat at the very first part of my meal; for if eaten later I had to spit it up in a short time. I had not in many years been able to eat potatoes of either kind, though I am very fond of them, only at the first of a meal, and only a small quantity then; otherwise I had the heart-burn so badly that I could not rest till next meal. I knew it was destroying my health, wasting my body and robbing me of my strength. But that was not the worst of it; for I had for a long time felt sure that it was a sin and so, of course, was ruining my very soul.

I had been for some time thinking of stopping the use of it, but could never muster up the courage to make the attempt until I read your article in GLEANINGS for April 1, 1901, when I read the case, God helping me. I asked the great Creator of the universe, who said, "Let us make man in our own image," to help me to rid myself of this curse, for such it was, and he has so abundantly helped me that to-day I can stand up before the world, and, in the sight of God, a clean man, with no desire whatever for alcohol, tobacco, or anything of the kind. My health has improved immensely, and I have gained 20 lbs. in weight and a great deal in strength. I can now eat many things that I could not eat before. I can eat as many potatoes as I want, and just whenever I like, without

any after-trouble. I can eat butter, gravy, and even pork, and digest them all right.

Now, you can see that I have much to be thankful for, and I thank you again for the help you have given me; but I feel sure that you will feel well compensated when you learn that you have been instrumental, with God's help, in delivering another soul from the thralldom of the tobacco curse. Still, I shall always feel grateful toward you, and shall pray that God may continue you many years yet in your good work; and I hereby pledge myself a worker in the same cause while I live, or until all men cease to pollute the temple that was created for the indwelling of the Holy Spirit, by the use of such vile stuff as alcohol and tobacco.

J. R. PINKHAM.

Washington, N. C., Apr. 15.

Why Not

Buy your supplies of us and get entire satisfaction, as hundreds of bee-keepers are doing? It is a profound pleasure to us to have satisfied customers.

We have car loads of goods and more cars coming. We occupy 3250 square feet of floor space, we have long experience, we are in the best shipping point, we handle G. B. Lewis Co.'s Goods and Dadant's Comb Foundation, and the best of all kinds of bee supplies.

We are doing an extensive business in queens this year. We guarantee pure mating and safe arrival. They are all from pure stock, and from mothers who are known to be some of the greatest "hustlers" in the country. Catalog free.

C. M. Scott & Co.,
1004 E. Washington St.,
Indianapolis, Ind.

QUEENS AND NUCLEI.—Untested queens, either 3 or 5 banded, 75c; 6 for \$4.25. Tested, \$1.00 and up. Nucleus, including untested queen, 2-fr., \$2.50; 3-fr., \$3.25; 4-fr., \$3.75. CHAS. H. THIES, Steeleville, Ill.

RUBBER STAMPS. Send us 25 cts. for year's sub to our 16p. monthly journal and we will mail you FREE as a premium a two-line Rubber Stamp, or two one-line Stamps, to print any wording you want.

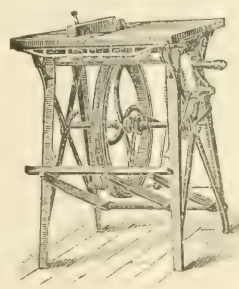
THE FARM AND POULTRY NEWS, Middlesboro, Ky.

!! WHITE LEGHORNS !!
Single comb; stock large and fine; Satisfaction guaranteed. Pekin ducks. Eggs, \$1.50 per 13. Address W. H. GIFFORD, 151 Franklin St., Auburn, N. Y.



BEATS 'em all.
THE PETALUMA INCUBATOR
Is absolutely perfect as to incubator essentials—proper application and distribution of heat and moisture, regulation and ventilation. For 64 to 324 eggs. We Pay Freight anywhere in U. S. Catalog free.

PETALUMA INCUBATOR CO.,
Box 125, Petaluma, California, or Box 125, Indianapolis, Ind.



BARNES'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.

Machines on Trial.
Send for illustrated catalog and prices. Address
W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford, : Illinois.

QUEENS, QUEENS

Old Standbys.—The A. I. Root Co., to whom we have sold queens for many years, wrote us last May, thus: "Are you running low on queens? We hope not, as you seem to be our standbys. Send us 24 per week instead of 12, till further orders."

Beat Any Thing He ever Saw.—The Cyprian queens you sent me last year beat any thing I ever saw rearing brood and filling their hives with honey.—J. Nielson, Huntington, Utah, Sept. 4, 1901.

Is Great.—The nucleus you sent me last fall is great—the finest queen that ever crossed the plains. Please duplicate her this time. Mr. Jordan says the nucleus you sent him cast two fine swarms.—G. R. Warren, Fruitvale, Cal., May 12, 1901.

\$50 Queens.—My nice queen that you sent me, and I put in a hive with a handful of bees on the 6th day of last June, has now nearly filled her 30-lb. super for the third time. No man's \$50.00 bill could take her. Please send me another one like her as soon as possible, and keep a dozen ready for me like her for the 20th of April next, and I will make you a nice present.—M. Brown, Station A, Little Rock, Ark.

We breed Italians, Cyprians, Holylands, Carniolans, and Albinos, in separate yards, 5 to 20 miles apart. Prompt service. Safe arrival guaranteed. Bees by the pound, nucleus, full colony, or by the carload.

Prices: Tested, \$1.50 each; \$8.00 for six; \$15.00 per dozen. Untested, February, March, April, May, \$1.00 each; \$5.00 for six; \$9.00 per dozen. Fine breeders, \$5.00 each. Send for our catalog, free by mail; tells how to rear queens and how to keep bees for profit.

Agents for Dadant's Foundation and *Gleanings*. Premiums given. Don't fail to get our printed matter. It's ALL free. Bee-supplies of all kinds.

The Jennie Atchley Co., Beeville, Tex.

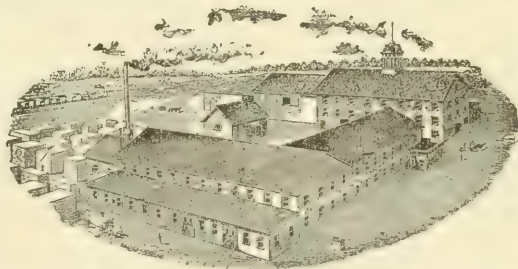
Now Ready!

Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,

Wetumpka, Elmore Co., Ala.



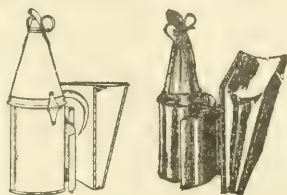
Kretschmer Mfg. Co., Box 60, Red Oak, Ia.

BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

— AGENCIES —

Trester Supply Company, Lincoln, Neb.
Shngart & Ouren, Council Bluffs, Ia.
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used.
Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inkly drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

DENVER.—No change in the price of comb honey; strictly No. 1 white comb, \$2.50@2.75 per case; off grades and partly candied, \$1.75@2.25. Extracted No. 1 white, 7@7½. Beeswax, 24@27, and scarce.

COLORADO HONEY-PRODUCERS' ASS'N,

May 14. 1440 Market St., Denver, Col.

PHILADELPHIA.—The present honey season is about over with in a retail way, and so little call that there are not enough sales to fix a price. Car lots of western honey on track, 5½; and in a retail way from 6@8, according to quality. Beeswax, 30c. I am a producer of honey, and do not handle on commission.

WM. A. SELSER,

May 19. 10 Vine St., Philadelphia, Pa.

MILWAUKEE.—The honey trade is almost at a standstill—especially extracted, it seems, will not move; large buyers overstocked, and small dealers have enough for present demands. Comb does not sell much better during the last month's time. The supply is fair. For fancy 1-lb. sections we can quote 14@15; A No. 1 13@14; old or dark, nominal, 11@13c. Extracted in barrels, kegs, and pails, white, 7@8; dark, 5@6. Beeswax, 28@30.

A. V. BISHOP & Co.,

May 15. 119 Buffalo St., Milwaukee, Wis.

BUFFALO.—Honey is selling very slow now. Fancy white comb, 14@14½; A No. 1, 13½@14; No. 1, 12½@13; No. 2, 11@12; No. 3, 10@11; No. 1 dark, 11@12; No. 2, 11@12. Extracted white, 6@6½; dark, 5@5½. Beeswax, 28@30.

W. C. TOWNSEND,

May 26. 167 Scott St., Buffalo, N. Y.

CHICAGO.—The market is without special change from that prevailing early in the month with perhaps less doing than was noticed at that time. White comb honey sells in a small way at 14@15 for fancy white clover and basswood; other kinds, 12@13; ambers of all grades and flavors dull at 8@10. Extracted unusually quiet, with white ranging from 5½@6½; ambers, 5@5½; dark, 4@5. Beeswax still in active demand at 32.

R. A. BURNETT & Co.,

May 19. 199 South Water St., Chicago, Ill.

CINCINNATI.—As the warm weather sets in, the demand for comb honey is as good as over. There are no settled prices; for whatever is left, prices are made to force sales. Extracted honey is in fair demand, and finds steady sales. Amber is sold in barrel lots for 5@5½; water-white alfalfa sells at 6@6½; white clover, 6½@7. Beeswax scarce, and brings 30@31.

C. H. W. WEBER,

May 19. 2146 Central Ave., Cincinnati, Ohio.

SAN FRANCISCO.—Comb honey, 10@12. Extracted, water-white, 5½@6½; light amber, 4@5½; dark, 4@5. Receipts are light, and prices well sustained. Beeswax, 27½@30.

E. H. SCHAEFFLE,

May 17. Murphys, Calif.

WANTED.—Honey and beeswax. Mail sample, and state price delivered at here. C. H. W. WEBER, 2146, 2148 Central Ave., Cincinnati, Ohio.

WANTED.—Comb and extracted honey. State price kind, and quantity. R. A. BURNETT & Co., 199 South Water St., Chicago, Ill.

WANTED.—Extracted honey, either large or small lots; parties having same to offer, send samples, and best prices delivered, Cincinnati, O. We pay cash on delivery. THE FRED W. MUTH CO., Front and Walnut Sts., Cincinnati, O.

WANTED.—Comb honey in Danzenbaker sections. We can use both white and amber. THE A. I. ROOT CO., Medina, Ohio.

FOR SALE.—Extracted honey, from alfalfa, at 7c per pound. Send for sample. D. S. JENKINS, Las Animas, Col.

FOR SALE.—Whitest alfalfa honey, \$9.00; tinted, \$7.80, per case of two 60-lb. cans, net. ARKANSAS VALLEY APIARIES, Las Animas, Col.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHHEIM, 1318-1324 Union Avenue, Kansas City, Mo.

Why Not

Buy your supplies of us and get entire satisfaction, as hundreds of bee-keepers are doing? It is a profound pleasure to us to have satisfied customers.

We have car loads of goods and more cars coming. We occupy 3250 square feet of floor space, we have long experience, we are in the best shipping point, we handle G. B. Lewis Co.'s Goods and Dadant's Comb Foundation, and the best of all kinds of bee supplies.

We are doing an extensive business in queens this year. We guarantee pure mating and safe arrival. They are all from pure stock, and from mothers who are known to be some of the greatest "hustlers" in the country. Catalog free.

C. M. Scott & Co.,
1004 E. Washington St.,
Indianapolis, Ind.

A VOICE FROM ITALY!

Pure Italian Queens can be supplied at 10 shillings each. Write in English, French, or Italian, and address Malan Bros. (Waldensian Valleys), Luserna San Giovanni, Italy. Our motto: "Do unto others what you would like to be done to you."

Victor's Strain of Italian Bees Awarded the Diploma as Being the Best Bees at the Pan-American.

BUREAU OF AWARDS.

PAN-AMERICAN EXPOSITION, }
BUFFALO, NEW YORK, U. S. A. }
February 12, 1902. }

M. H. O. Victor, Wharton, Texas.

Dear Sir:—I have the honor to advise you that a Diploma of Honorable Mention has been awarded to you for your exhibit of Italian bees at this Exposition.

Very respectfully, WM. I. BUCHANAN,
Director-General.

Orel L. Hershiser Bought of Me an Untested Queen. This is what He Says of Her Colony:

"They are very industrious, characteristically marked, and extremely gentle. It was a daily experience, and repeated many times daily, to go into the inclosure with interested visitors, at the Exposition, open the hive, full to overflowing with beautiful bees, the progeny of the queen you sent me, and handle them in the various manipulations of hunting out the queen; shaking the bees from the comb, as is done in extracting, showing the brood in all stages, etc., all without the use of a smoker or any thing else to quiet the bees, and I do not recollect that any one ever got a sting from any of them."

Of the bees I exhibited at the Pan-American, he says: "The nucleus you sent for exhibition and award was certainly very fine-looking bees, and, in my opinion, they deserve the award given them by the judges."

But Who is Mr. Hershiser?

See *Gleanings* of date of Feb'y 1, 1902, page 97. Send in your orders for queens, and in a short time, as Mr. Hershiser and hundreds of others are now doing, you, too, will be singing the praises of "Victor's Bees." Price lists on application.

I Am Filling Orders by Return Mail from This Superior Stock at Following Prices:

Untested queens: 1, \$1.00; 6, \$5.00. Select untested queens: 1, \$1.25; 6, \$6.00. Tested queens: 1, \$1.50; 6, \$8.00. Select tested queens: 1, \$2.00; 6, \$11.00. Breeders, \$3.00 to \$7.00. See circular for specifications.

W. O. VICTOR, Wharton, Tex.

Queen Specialist.

Wants and Exchange.

WANTED.—To sell 50 colonies bees, at \$2.75 per colony; 5 or more, \$2.50 each; in home-made hives; mostly Hoffman frames; bees in good condition; a bargain
GARDINER L. ELLIS, Millsboro, Del.

WANTED.—To sell Rocky Ford cantaloupe seed. Seed of these famous melons postpaid, 40 cts. per pound. Choice selected stock.

H. F. HAGEN, Rocky Ford, Colorado.

WANTED.—One dollar for 15 W. P. Rock eggs; \$3.00 for 50, or \$5.00 for 100; from 93 to 95 scoring birds; cockerels and pullets, \$1.00 each; 75 cts. for one Golden Italian queen, or \$8.00 per dozen—after August 1st, 50c each or \$5.00 per dozen.

GEO. W. COOK, Spring Hill, Kansas.

WANTED.—Bee keepers to study our advertisement and testimonial of queens in April 1st *GLEANINGS*.
R. F. HOLTERMANN, Manager Bee Department,
Bow Park Co., Limited, Brantford, Canada.

WANTED.—Second-hand or knocked-down hives. Describe them, with price. Also want a man who knows how to handle bees a little.

W. L. COGGSHALL, West Groton, N. Y.

WANTED.—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid.
O. H. HYATT, Shenandoah, Ia.

WANTED.—To sell 70 hives of bees, some nuclei, stands, and frames; good condition; many fixtures. Write quick.
CHAS. G. MILLER, Cuero, Tex.

WANTED.—Prices on comb and extracted honey, and sorghum.
L. R. BIDWELL, Watonga, O. T.

WANTED.—To sell 35 colonies of bees with hives, fixtures, etc., 10-frame L. size, all in first-class condition, in the best basswood and white-clover section of Wisconsin, or would rent to reliable party.

W. H. LONGSDORF, Porcupine, Wis.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and $\frac{1}{4} \times \frac{1}{4}$ sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange American Eclipse evaporator—contains 78 reversible trays, 7 square feet each—for bees or offers, or will sell cheap for cash. Also want location for bee-yard in the buckwheat district, either West Virginia, Pennsylvania, or Maryland.
REINHARD STEHLE, Marietta, Ohio.

WANTED.—To sell flash-light photos taken down a coal mine, size 4x5, 10c each, unmounted; or two below and one on top—the three for 25c.

L. BURR, Braceville, Ill.

WANTED.—A buyer for a quantity of honey-cans that have been used once. Write for particulars to
L. C. WOODMAN, Grand Rapids, Mich.

WANTED.—To exchange untested Italian queens from imported stock for Dadant uncapping-can. Write first.
L. B. SMITH, Lometa, Texas.

WANTED.—Buyer for two choice lots near depot and schools, \$15 each or two for \$25.
C. G. ADAMS, Sorrento, Fla.

WANTED.—To sell a number of hives and frames, full of comb, on wire, built on foundation, all in Langstroth size, and in good order, also Barnes foot-power saw, etc. Reason for selling, have quit the bee-business. Address for information,
JAKE EVERMAN, North Middletown, Ky.

WANTED.—To sell June and July eggs from pure B. P. Rocks at two sittings for \$1.00. Order direct.
G. M. RANUM, Perry, Wis.

WANTED.—To sell a new Taber rotary pump, No. 3, 2-in. suction and discharge; cost \$50.00; will take \$20.00.
J. Q. MULFORD, Lebanon, Ohio.

To make cows pay, use Sharples Cream Separators, book "Business Dairying" & cat. 288 free. W. Chester, Pa.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

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E. R. ROOT, Editor of Apicultural Dept.

J. T. CALVERT, Bus. Mgr.

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of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

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Retail—Wholesale—Jobbing.

Having increased my shop-room, put in power and a new set of machines, I am now producing a better article than ever, with unlimited capacity to meet orders. I use a process that produces every essential necessary to make it the best and most desirable in all respects. My process and automatic machines are my own inventions, which enable me to sell foundation, and **WORK WAX INTO FOUNDATION FOR CASH**, at prices that are the lowest. I make a specialty of working up Wholesale and Jobbing Lots of wax into foundation, for cash. If you have wax by the 100 lbs. or ton, let me hear from you. Catalog giving

FULL LINE OF SUPPLIES

with prices and samples, free upon application. **BEESWAX WANTED.**

Cus. Dittmer,
Augusta, - Wisconsin.

1200 FERRETS. All sizes; some trained; first-class stock. New price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**

Angora Goats are handsome, hardy, profitable. Prize stock; low price; circular. **ED. W. COLE & Co., Kenton, O.**

Marshfield Manufacturing Company.

Our specialty is making **SECTIONS**, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of **BEE-SUPPLIES**. Write for **FREE** illustrated catalog and price list.

Marshfield Manufacturing Company, Marshfield, Wisconsin.

I. J. Stringham, New York City

105 Park Place.

We keep in stock two or three carloads of Apiarian Supplies, and fill orders promptly. For regular goods orders are filled within one or two days.

Stock is made up of a large variety of Hives, Sections, etc. Silk-faced veil, 35c. Tested Italian Queens, \$1.25; untested, 85c. Catalog free. Apiaries, Glen Cove, L. I.

The A. I. Root Co., Philadelphia, Pa.

10 Vine Street.

Full line of all supplies manufactured by us.
Low freight and steamship rates to all points on
Atlantic Coast. Order early, be ready for spring.

Orders Shipped Promptly.

We are running our large factory and shipping-department DAY and NIGHT, and are therefore in position to make prompt shipment of orders.

Lewis White Polished Sections are Perfect. Last winter's cut of Wisconsin basswood is the whitest we have ever seen. When you order No. 1 Sections from us you will get a strictly No. 1 grade in both workmanship and color.

Our Bee-hives are made of a fine grade of lumber and are perfect in workmanship. A full line of every thing needed in the apiary ready for prompt shipment. Catalog mailed on application.

A Suggestion. Do not put your money into *new-fangled* bee-hives, but buy a simple, serviceable, and well-made hive such as the regular Dovetailed Hive, arranged for beeway sections. Honey-producers in Colorado, one of the largest honey-producing sections in the world, use this style.

G. B. Lewis Company, Watertown, Wis.

Queens Now Ready to Supply by Return Mail.

Golden Italians have no superiors and few equals; untested, 75c; 6 for \$4.00.

Red-clover Queens which left all records behind in gathering honey; untested, \$1; 6 for \$5.

Carniolans, the so highly recommended, being *more* gentle than others; untested, \$1.00.

Root's Goods at Root's Factory Prices.

C. H. W. Weber, 2146, 2148 Central Av., Cincinnati, Ohio.

Successor to Chas. F. Muth and A. Muth.

GLEANNINGS

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

BEE CULTURE

ILLUSTRATED
SEMI-MONTHLY

Published by THE A. I. ROOT CO.
\$1.00 PER YEAR MEDINA, OHIO

VOL. XXX.

JUNE 1, 1902.

No. 11



DZIERZON and others had four-banded Italians a third of a century ago.

RAMBLER'S SLATE, p. 436, tells us he has bought a house, and then tells us to keep an eye on that spot. I'm going to keep my eye on his slate to find out what "lady fair" is slated to occupy that house with him.

"AS FOR ROBBERS, since our bees are all Italians we have almost forgotten there are any, and scarcely take any precaution at all, now." That's what A. I. Root said in *Amer. Bee Journal*, 1870, page 259. It's just as true now.

REPLYING to a question on p. 411, Mr. Editor, I should say that, instead of going to Europe to find out about formalin for foul brood, you should apply to Prof. Harrison, up in Canada. His experiments have perhaps been more favorable to the use of formalin than any thing reported in Europe.

JOHN HARDCRABBLE says, in *Amer. Bee-Keeper*, "It do be queer how every time a new idea about queens gets a start, the 'boys' in the trade shout, 'I've got 'em, and got 'em fust, too!' And when they can't keep the pace, then 'the new ideas ain't no good.'" Say, John, that tongue of yours will get you into trouble yet. Don't you know the truth musn't be spoken at all times?

STENOG is doing some excellent work in conducting the Question-box in *Chat*, telling how to use that troublesome thing, the English language. His ruling as to "first" and "last" may make some of his readers dizzy. "All the letters of the alphabet are first except Z;" but if recited backward, all are last except A. You must say "the three first books of the Bible;" but when the number is large it's different; then you may have the "first thirty-nine books." I'm interested to know if some of his readers will want to know the exact point at

which the word "first" shall be shifted to the first place. [Send your puzzles by mail, doctor.—ST.]

STENOG wants me to tell if I can about bees injecting poison in a cell of honey just before sealing it over. Years ago Rev. W. F. Clarke said they did so, and also that they used the sting as a trowel to assist in forming the wax into comb. When I remonstrated with him privately, he said he saw the bees at work in the cells, and what else could they be doing? I don't believe he had an iota of satisfactory evidence for his belief, and that it was only a wild guess; but his belief has been quoted a good many times since as something reasonable and real. If I remember correctly, Cheshire says the formic acid gets into the honey through the blood of the bee.

THE EDITOR of *Amer. Bee-Keeper* is getting me into trouble. He wants me to tell how to pronounce "super;" and if I do there's a whole lot of people will think I'm telling what isn't so, for they want to persist in saying "sooper," just as they say, and as I too often say, "soo" for "sue," "sooperior" for "superior," etc. The fact is, if they will look in the dictionary they will find that, among the words in common use, there is not one in the English language beginning with "su" and pronounced "soo." And it's just as much out of the way to say "sooper" for "super" as it is to say "coo" for "cue." The "u" in "super" has precisely the same sound as it has in "cue," "bugle," "fury," or "pure." [You are entirely correct.—ED.]

IN A TWO-STORY HIVE, the space between the upper and lower set of frames must be "not more than one inch, or the bees will build combs there." So says A. I. Root in *Amer. Bee Journal*, Vol. VI., page 223. I should like to ask him whether, in his 31 years' experience since that time, he has not found at least some cases in which combs would be built, even with so small a space as one inch. [What started you, doctor, to going away back into ancient literature? Well, I know that A. I. R. would not to-day subscribe to the statement that one inch is a proper bee-space between the

upper and lower stories or upper and lower sets of frames. Ten years after, we find that he adopted the $\frac{3}{8}$ space; and in later years he has sanctioned the use of thick top-bars and a $\frac{1}{4}$ -inch bee-space as being more nearly correct than the $\frac{3}{8}$ that he considered just right. If he were here and not in Michigan, starting life anew as a farmer, I would refer your question to him. As it is, he will probably see it, and correct any statement I have made regarding his own present opinions.—ED.]

J. E. CRANE thinks we might have a sort of knapsack smoker, bellows carried under arm, fire-pot connected by short hose, and smoke carried through hose to small nozzle—all told about the length of the arm. Handy to use at a second's notice, without lifting up; but wouldn't it be a little in the way? In Europe they have one fastened to the arm or wrist. [That would be nice; but would not a smoker-cup be a hot thing next to your person? It is hot enough for one to lean over a hive under the boiling sun, without having a stove fastened right on to or close to his body. If a continuous stream of smoke is desired, why not have a foot-power smoker that could be stood on the ground, having a hose connection to the little finger of one's hand? When smoke is desired, all one would have to do would be to work one foot while both hands would be perfectly free. Such a smoker, with a bail or handle on it, could be easily carried from one hive to another. Perhaps the idea is worth developing.—ED.]

MR. EDITOR, you seem to think bees would not like to store with separators between extracting-combs. I never tried that, but I have tried having a dummy between each two frames in the brood-chamber, and it didn't seem to make any trouble. You ask, "Don't you recall how disinclined the bees are to go outside of the division-board and store honey in a comb that may be left on the outside?" Once I gave to a rather weak colony in a ten-frame hive a comb that I had filled with sugar-syrup. I put it outside a dummy, and it chanced that, beside it, there was an empty comb. I expected the bees to carry the syrup into the brood-nest; instead of that they put it in the empty comb outside the division-board. Last year my best queen was kept with three frames in one side of a hive. On the other side of the hive were three combs containing more or less honey. Two dummies were given, and the space for two combs in the middle of the hive was left vacant. They occupied the six combs throughout the summer without ever offering to build in the center, and I think they stored in the three combs away from the brood-nest. There was never any cluster of bees in the vacant part. [A good deal depends on the strength of the honey-flow. If room is scarce, bees are disposed to swarm, and honey is coming in rapidly, dummies or separators would cut very little figure in the amount of honey produced; but if the season be backward, the colony a little weak, a division or dummy-board,

in our locality, is almost sure to prove a damper to the onward progress of the brood-nest. Are not the cases you mention the exceptions that prove the rule?—ED.]



To-day fair Cuba stands at last
From hated despots free;
Columbia the fetters broke
And gave her liberty.



On page 93, in speaking of the writings of Mr. R. Hamlyn-Harris, of England, I expressed surprise that he should make no reference to Mr. Langstroth as an inventor, and attributed it to "bias if not prejudice." I am glad to learn that neither of these factors entered into the problem, as the following from Mr. H. shows:

Dear Stenog :—I plead guilty to neglect, and that is all. I regret that I made no mention of Langstroth in my recent paper; *prejudice* I am not guilty of; but *omission* in this case came more from want of forethought. You may make use of my remarks for publication if you wish. I am fearfully busy, and have been for some time, at a piece of research work which took me to Naples. I therefore regret that I am so often absent; indeed, I am so occupied that I leave much that I ought to do undone. Please excuse my unintentional omission. I thank you very much for your kind review of my paper.

R. HAMLYN-HARRIS.

Zoological Institute, Tübingen, Germany, Mar. 23.

As a writer on bees in particular, Mr. Hamlyn-Harris is, in my opinion, the best author we have on the continent. He is at home in the literature of the bee, no matter what language it is written in. His review of foreign bee-journals, in the *British Bee Journal*, constitutes one of the most readable features of that paper. Any thing from his pen will pay perusal.



L'APICULTEUR.

The May number of this magazine is probably the largest bee journal ever issued, consisting of 128 pages the size of this. Over 80 pages of this are devoted to the proceedings of the annual meeting of the Federation of French Bee-keepers' Societies. They give it all at once instead of running it through several issues. The fact that 24 bee-keeper's societies were represented in this convention shows the extent to which French bee-keepers are united in furthering their own interests. It is in refreshing contrast with the comparative lack of organization in this country.



AUSTRALASIAN BEE-KEEPER.

This journal, published by Pender Bros., is always full of good things. Although the subject is hardly worth while, I have thought best to quote a few words from Mr. Gale in regard to Maeterlinck's *Life of the Bee*, as that book is now so much discussed.

I do this by way of apology for what I said in favor of this work. Mr. Gale says:

"It is the only comic production on 'bee life' that has ever been produced. When bee-men want some fun I strongly recommend them to its perusal. 'All rights reserved,' except the right to laugh. What makes it still more comical is that some of the European periodicals have published, in all seriousness, lengthy extracts from it, showing the wonderful economy of the bee nation. When it is evident the writer was only 'taking a rise' out of the non-bee-keeping public, I will give a few extracts: 'Transport our black bee to California or Australia, and her habits will be completely altered. Finding that summer is perpetual and flowers forever abundant, she will, after one or two years, be content to live from day to day, and gather only sufficient honey and pollen for the day's consumption.' 'Drones, foolish, clumsy, useless, noisy, pretentious, gluttonous dirty, coarse, totally and scandalously idle, insatiable, and enormous.' 'Indecate, wasteful, sleek and corpulent, fully content with their idle existence as honorary lovers, they feast and carouse through the alleys, obstruct the passages, and hinder the work; jostling and jostled, fatuously, pompous, swelled with foolish, good-natured contempt.'"

Although the book is not all as bad as this, it certainly must be read in the light of something highly figurative and fanciful. If it is not read, nothing will be lost; and if it is read, but little harm will be done.



AMERICAN BEE JOURNAL.

In a reply to E. E. Hasty, Prof. A. J. Cook makes the following interesting observations in regard to the length of bees' tongues and methods of measuring them:

"In a letter from Prof. Gillette he objects to my method of obtaining the tongues. I cut off the heads of the bees, and then dissect out the tongues. Prof. Gillette threw the bees into hot water. His objection to my method is that the tongue will move. Of course we must wait until the muscles die, which requires many hours, often a full day. I have known a headless wasp to inflict a painful sting more than 12 hours after it had lost its head. Of course the muscles were not all dead yet, and the sting will be thrust out as long as the muscles are alive. Might not the hot water set the muscles? If we stretch the tongue by pressure on the mentum as soon as the muscles are dead and inactive, and before rigor mortis has set in, I believe we have the conditions best suited to give the most correct results."



SOMETHING ABOUT QUEEN-REARING; THE CELL-CUP PLAN; DOES IT PRODUCE INFERIOR QUEENS?

"Good morning, Mr. Doolittle. I came over this morning to have a little chat with you regarding queen-rearing, as I wish to rear quite a few queens this year. What is the best method to pursue?"

"Without doubt, Mr. Brown, as good queens can be reared by the bees under the swarming impulse as by any other plan. This has been the way in which queens have been reared mostly during all the centuries which have passed, up to about fifty years ago, and the way by which the bees survived all of the perils through which they have passed, so that they came

down to our day as hardy and vigorous as they were on the morn of that day when the Creator of all things pronounced all which he had made as *good*."

"Undoubtedly that is correct, but I do not wish to be tied up to the little space during the season when the bees are swarming, in which to rear queens. I wish to rear queens just when I desire to do so. Is there any way good queens can be reared at any season of the year?"

"As you put it I shall have to say no, and say the same very emphatically. Good queens can not be reared in the spring until enough young bees have emerged from their cells to make quite a comfortable showing in the hive; neither can good queens be reared in the fall after brood-rearing has mainly ceased. It needs plenty of young bees and a good supply of brood in the hive to rear first-class queens. With this as a foundation, you can supply a lack in pasturage by feeding. Then if you can find any colony which shows by its building queen-cells outside of the swarming season that the bees are about to supersede their queen, you can raise as good queens from that colony, during the time that the old queen lives, as can be reared under the swarming impulse."

"I am glad to hear that, for I found one of my strongest colonies building queen-cells yesterday, some having royal jelly and larvæ in them. But this colony has not my best queen in it, and I wish to raise my queens from my best queen. How can I overcome this difficulty?"

"By doing what is known as grafting the queen-cells, which is simply transferring larvæ from your best queen over into the royal jelly in the queen-cells the bees have started, after first removing the larva that floats on this royal jelly. In this way you fool the bees, and they go on and perfect a queen from the substituted larva, the same as they would have perfected their own."

"But how can I be sure that the grafted cells are not torn down, or that others are not completed which I have not grafted?"

"By sticking a slim 1¼-inch wire nail through the comb immediately over the grafted cell you can tell all about this; and if you wish to secure as many queens from this colony as possible, while the old queen lives, you will open the hive twice a week and graft all cells having royal jelly in them at each time of opening, and, later on, take out the ripe cells before the queens emerge. In this way you may get as many as from 25 to 100 splendid queens from this colony before the queen dies."

"But must I wait for the bees to start cells? They are sometimes loath to start more than one or two."

"I know that a colony desiring to supersede its queen will not, as a rule, start as many cells as will a colony under the swarming impulse; and if I wish queens faster than they start cells of their own accord, I use the cell-cup plan. In other

words, imitation embryo queen-cells are made out of beeswax, into which royal jelly is placed, when a larva from our best breeding queen is transferred to the royal jelly, and ten or twelve of these prepared cell-cups are given to this colony that is about to supersede its queen, when the bees will perfect them just as they would one of the grafted cells we have been talking about; and by giving a batch of these prepared cell-cups twice a week we can often secure several hundred fine queens from this superseding colony before the queen fails entirely."

"I see. But suppose I did not have this superseding colony, what then could I do?"

"It has been known for some years that, where a part of the brood in any colony has the queen shut from it by using the queen-excluding metal to partition off a part of the hive, or by putting it over a strong colony, between the hives, where a two-story hive is used, the bees with this shut-off brood will work on the same plan they do when superseding a queen; and consequently hundreds and probably thousands of bee-keepers raise their queens by the cell-cup plan in this way, without being obliged to wait for supersedure of queens, swarming of colonies, or any other thing, only that there are plenty of nurse-bees, and brood for them to nurse, in the part not having the queen."

"Ah! that makes the whole thing plain."

"What plain?"

"An article written by Mr. A. C. Miller, and published in GLEANINGS for April 15th. I noticed he claimed that queens reared by this cell-cup plan were not proving as good as were those reared by the Alley plan, and he cited as proof that we had increasing reports of inferior queens, given in our bee-papers, during the past few years, or since the cell-cup plan had been exploited. Did you read that article?"

"Yes. I noticed what Mr. Miller had to say in this matter; and my mind went back to the early eighties, when Mr. Alley's book on queen-rearing came out. I have been a careful reader of our bee-papers, and have noted many things; and one of the things which I have noted is that, in proportion to those buying queens, there are not nearly so many reports of poor queens to-day as there were during the eighties. In other words, the reports of poor queens are little if any greater now than were such reports during the eighties, while the queen-traffic of to-day has reached gigantic proportions beside what it was then. This shows that the cell-cup plan has been a success beyond any thing previously known, does it not?"

"It would look that way, surely. But what do you think of the claim, that the average manipulators use too old larvæ?"

"I consider this an assertion without foundation; but were it so, that more are apt to use larvæ over two days old than under, his quotation from Mr. Cowan shows that there is no practical difference in the

food given any larva till it reaches an age exceeding three days. Then I never heard of any one using the cell-cup plan but who first took pains to know the age of the larvæ they were using by observing their size four days after the eggs were laid; and, after having thus learned, it is no trick at all to tell a larva that is between the ages of 24 and 36 hours."

"What do you think of Mr. Alley's quoted saying, that queens reared in upper stories, except in the flush of the honey-flow," are as worthless as flies?"

"This I look upon as another assertion, without the slightest reason in fact to support it. This assertion seems to almost stagger even Mr. Miller; for he says the 'why' of it is 'difficult to say.' So far as I know, no one has ever advocated the cell-cup plan in upper stories at a time when nectar is not coming in from the field unless the bees are liberally fed; and by thus feeding, I know from an experience covering fifteen years, that just as good queens can be reared in this way during June, July, and August, as can be reared by any other plan, Alley's not excepted. Mr. Alley's plan of queen-rearing I know to be a good one, for I have used it quite largely, and one very much in advance of the plans used prior to 1883, when his book was first published; but the trying to belittle other plans, either by himself or Mr. Miller, adds nothing to the value of that plan."

"Does not Mr. Alley advocate replacing or superseding queens every two years?"

"I could not say as to that; but many do; and under the old ways of rearing queens it was often expedient to do so. But since I adopted the cell-cup plan, the average good work of my queens is from three to four years, with an exceptional one doing good work the fifth year. The old saying was, 'The proof of the pudding is in the eating;' and because the 'eating,' with queens reared by the cell-cup plan, has proven the best way with me of any is the reason I keep on 'eating' that way—otherwise I should change to something which gives me more pleasure while 'eating.' And now, so that this conversation shall not be too long drawn out, here is Mr. Alley's book, which I will gladly lend you, together with this one treating on the cell-cup plan. Take them both home with you, read them carefully, then put both into practical use; and the one which gives you the better results, all things considered, is the one for you to adopt in your apiary. Had Mr. Miller told us of his own experience in the use of each plan, and wherein *he* had found the Alley plan the better, his article would have carried more weight with it. The best is what we should all strive for, regardless of who originated it.

"But before you go let me say that the credit for the plan of transferring the 'larva, cradle, and all,' which Mr. Miller accords to Mr. Pridgen, belongs to Willie Atchley, the Texas lad with whom it originated."



I OMITTED to state, in our last issue, that Rambler will keep the readers of GLEANINGS posted as to his present whereabouts and doings by means of "blackboards" that will be given from time to time. The second blackboard is given at the close of his article in this number. The first one was given on page 436 of our last issue.

THE spring has been decidedly backward, in the Northern and Central States at least. But all nature seems to be trying to catch up. We have been having in our locality beautiful "corn weather," which means hot weather, and frequent and copious rains. All nature is putting on its gayest decorations; and the trees, fully leafed out, are now at their prettiest green.

PERHAPS our readers have not observed that we have been giving eight extra pages throughout the entire year—sometimes sixteen. And perhaps they did know it, for we are getting encouraging letters, and our subscription-list is jumping up at a steady, healthy pace. To make our journal better, we hope our readers will tell what they like and what they do not like.

PRIDGEN'S NEW BOOK ON QUEEN-REARING.

SOME time ago, as our readers will remember, I announced that W. H. Pridgen, of Creek, N. C., an expert queen-breeder, was about to write a book (the same to be published first in these columns), giving the latest methods of queen-rearing as developed by him from the original Doolittle system. He sent in his introductory article; but after that was published he made some very important improvements by which it seemed necessary to defer the matter until he could test these improvements and thus place his very latest discoveries before the bee-keeping world. He has taken nearly a year to develop and test his ideas, and the article by him in another column is the first one of the new series. Some of the matter will necessarily be elementary, and go over old ground, while much of it will be new and original.

MORE ABOUT THE PEAR-BLIGHT SITUATION IN CALIFORNIA.

I HAVE before me a copy of the Hanford *Daily Sentinel* of May 5, containing quite an extended report from Mr. Charles Downing, probably the most extensive pear-grower in the vicinity where pear-blight has made such fearful havoc in Central California. This report is to the effect that trees that were covered with mosquito-netting were almost entirely free from the blight, while those exposed to the visits of bees and other insects were badly blighted.

It appears that the bee-men endeavored,

in good faith, to get all the bees out of the vicinity in order to make a test. But one lot of bees escaped attention, for it seems well nigh impossible to get *every* bee-owner to comply with agreements made by the Association. It was these few bees, according to Mr. Downing, that scattered the blight in the other trees. If there is any thing in this, nothing can be accomplished unless *every* bee-keeper should move his bees away from the orchards while the trees are in bloom; and even then perhaps nothing will be accomplished unless all the wild bees and insects are taken care of.

The situation in the pear-blight region is complicated, and there may be trouble ahead for the bee-keepers in that vicinity. There are thousands and thousands of colonies and carload after carload of honey produced. It is possible that the pear-blight might disappear of itself. If it does not, there is almost sure to be a clashing of interests, and the National Bee-keepers' Association as well as the Central California State Bee-keepers' Association may be asked to see that justice is done to the bee-keeper.

There is a possibility (and this would not be at all strange) that the report offered by Mr. Downing is biased; for when a man's pocketbook is hit so hard that he thinks ten thousand dollars has been taken out of it, he would naturally make the case against the bees as strong as possible. I have met personally the principal parties on both sides, and I believe in the main they are represented by fair men. If the fruit-men will not make unreasonable demands the bee-men will meet them half way.

ANOTHER OFF YEAR FOR SOUTHERN CALIFORNIA; PRICES FOR THE COMING YEAR.

THE copious and refreshing showers which our friends in Southern California had some weeks ago did not have the expected effect on the honey flora. From ten to twenty inches of rain usually insures a honey crop; and Mr. Mendleson writes that he never knew a season before when the same amount of rain did not result in a fair yield of honey. Mr. G. W. Brodbeck says, in a recent letter, that his bees are getting some honey near the coast, but that the crop will be very light; and "from present reports, unless we have rain soon, which is not likely, Southern California will not produce fifty carloads of honey this season." Just contrast that with the inflation reports that went out a few weeks ago through the daily press, to the effect that this would be the greatest year on record for honey in California, and that there would be 500 carloads!

From various letters that we have received from the southern counties I am now convinced that this will be an off year, and that California will not cut much of a figure in the Eastern markets. There will be some honey, of course; but it will make no great flurry, and therefore prices all through the United States ought to be and will be reasonably firm.

There are some other reports from the East, that indicate that the season has been very backward. It has been very much so in this locality. It has been cold and chilly. Brood-rearing has been held in check, and the bees are "snappy." Mr. Doolittle says the season has been very discouraging in his locality; and so, taking it all in all, there ought to be a general toning of prices, east as well as west.

I hope the buyers will not get the idea that I am telling all this rigmarole to stiffen the market for the benefit of our subscribers. No, gentlemen, I am telling you the exact facts as they come to us.

THE VALUE OF DOUBLE-DECKERS FOR HONEY PRODUCTION IN POOR LOCALITIES.

SOME two or three years ago, as our readers will remember, I spoke of the fact that at our out-yard the two-story eight-frame hives, if properly handled, would yield more honey, even in proportion to the number of bees, than a one-story eight-frame hive. Some of the veterans at the time seemed to question the correctness of this. I have had some reports from various beekeepers who have tried it, and they speak favorably of it. I have just received a letter from one of the most extensive beekeepers in California, Geo. W. Brodbeck, at Los Angeles. Under date of May 10, he says the crop will be light in Southern California unless there is rain soon. Then he adds, "By the way, friend Ernest, if you could see my 150 double-deckers this year, and the way they are storing honey (I was up there last week) at the beginning of the honey-flow, *when others in the immediate vicinity were feeding*, you would hurrah for the double-deckers." Italics mine. The only point I wish to make at this time is that some of our best honey-producers I do not believe realize the importance of strong colonies, and a heavy force of bees ready to go into the field at the opening of the honey-flow, especially if the season or the locality is poor, and I do not believe that one with an ordinary eight-frame brood-nest can rear all the bees or brood that a good queen is capable of supplying. As I have before said, there should be brood in both upper and lower stories of the double-deckers: then at the beginning of the honey-flow the bees should be crowded down into one story, putting on a shallow story with extracting-frames at first. After they get well started in these, take them off and put on a super of sections containing full sheets of foundation. Mr. Wardell says that our 12-frame Langstroth hives and 10-frame Jumbo have each powerful colonies.

I do not advocate large hives or double-deckers for all localities; but if any brother bee-keeper is in a place where he does not succeed in getting honey, let him try it.

A CLEAR CASE OF POISONING.

DIED, May 18, 1902, by poison administered by some unknown hand, our red-clover queen, the breeder whose bees during

the last three or four years made such a record on red clover. She was in her fifth year at the time of her death; and although we kept her down by taking brood from her for rearing queens, her colony this spring was one of the most prosperous in the whole apiary. At the time of her death her bees were making a good showing during fruit-bloom. Ay, there's the rub. That explains her premature demise. Some neighbor within bee-flight, I do not know who he was, sprayed his trees, probably, while in bloom. Perhaps he had bought one of Stahl's outfits and followed his directions. The facts are these: We have been finding young brood dying in many of our hives, and in not a few instances queens dead at the entrance, just as we have found them before during spraying time; and our old faithful red-clover mother, from whom we have been rearing more queens than from any other breeder we ever had, was one of the ill-fated. If her bees had been less active she would have been alive today. But, no: if there was any nectar to be had they were out bright and early, at it first, last, and all the time; and whenever we wanted to get an idea whether there was any or not, all we had to do was to go and take a peep at Mrs. Red Clover's combs. As a rule they would bulge days and days before a similar condition could be found in other hives of equal strength. But, very fortunately, anticipating that she might die of old age we had reserved some of her select daughters that last summer gave a fine showing; for blood will tell, even if their mother might be called a *freak*. But it is a fact, nevertheless, that, if we could restore this queen and put her back to a year old, \$200 would not buy her.

But there is no use now in crying over spilled milk. But it will not be our fault if Ohio does not have an anti-spraying law two years hence. The legislature that just adjourned was so overwhelmed with a multiplicity of bills that we saw at the very start it was almost useless to try to get any thing through. But we will endeavor to have a bill drafted this time against spraying in full bloom, and have it "thrown into the hopper" at the very beginning of the "grind," two years hence.

THE BIG CONVENTION AT DENVER.

THE Colorado State Bee-keepers' Association is making plans on an extensive scale to entertain the National Bee-keepers' Association at Denver. Among other things they will give a complimentary banquet to the members of the National Association from other States, and a "seeing Denver" trolley ride to all the attractive places in the city. The local bee-keepers say they expect to spread themselves in such a way as to make the visiting bee-keepers proud of having attended the Denver meeting. The Governor, the Mayor of Denver, and the Secretary of the Denver Chamber of Commerce, will interest themselves in making the meeting a success. More anon.



PRODUCING EXTRACTED HONEY.

The Use and Non-use of Foundation; Experiments in Wiring Frames; do Bees Prefer Natural Comb to that Built off from Foundation, for Storage Purposes? Prevention of Swarming during Extracting; Useless Consumers; some Interesting Observations by a Practical Man.

BY C. DAVENPORT.

Last season I changed the fixtures of part of my colonies, and ran them for extracted honey, and secured a little over 9000 lbs. of our product in the liquid form. This was all sold in my home market at a fair price. By "home market" I mean the surrounding towns and cities that I am able to reach by team. The larger part was sold in a jobbing way to grocers. Not having nearly enough drawn combs to supply this increased force that was to be run for extracted honey, I purchased 100 lbs. of your Weed medium brood foundation, part of which was put in wired frames; but, so far as stretching or sagging was concerned, the wires were entirely unnecessary—that is, with established colonies—for I used unwired frames containing full sheets in almost all sorts of ways. With some colonies the upper story was filled with partly drawn comb and part foundation. With others the upper story was filled with frames, all of which had full sheets unwired. In other cases part of the brood-combs were removed to the upper story, and frames containing full sheets put in their place; and in no instance was there any trace of stretching that I could observe or find by careful measurement. But if full sheets unwired were given to swarms, the conditions would be somewhat different from any thing I tried, and in this case there might be some sagging. I believe, though, it pays to have extracting-combs well wired, for I found that, on hot days, these new unwired combs had to be handled with great care when extracting, while it seemed to be a hard matter to break a comb out of a frame that was properly wired.

I tried a number of different ways of wiring, but I believe that four horizontal wires are superior to any other plan that I have seen advocated. But when wiring in this way we are told not to draw the wires too tight or the foundation will buckle. I heeded this at first, but kept trying them tighter, and found there was no trace of buckling with the wires drawn as tight as possible. It might, of course, be different with other kinds or grades of foundation. But I can not say from experience, for, although I am one of the few who depend on bees alone for a living, I have previously had but a limited experience with full

sheets in brood-frames, for I have produced comb honey principally, and in my locality there is no question that more surplus can be secured when swarms are hived on frames containing only small starters.

I found last season one curious matter in regard to these new extracting-combs drawn out from full sheets. For instance, in the upper stories, where frames containing full sheets were alternated with frames of drawn comb, the bees, as might be expected, filled and bulged out these ready-built natural combs before drawing out the foundation. They seemed loath to draw it out in the upper story, though they took hold of it readily enough, and soon drew or built beautiful comb from it when it was placed in the brood-chamber, and a good deal of it was finally put in and drawn out, or at least well started, in the brood-nest.

I used queen-excluding zinc between the lower and upper stories; and I will say here that, by carefully conducted experiments in previous years, I found that I could, on an average, secure at least one-third more surplus when the queen is confined to eight or ten frames below than when she had the range of two or more stories. This may be far from being the case in the majority of localities; but there is no doubt about the matter here. The principal reason for this is the great horde of useless bees that are reared out of season to be producers but which must, instead, be consumers.

There has been a good deal of fun and ridicule made by some in regard to "useless consumers;" but if these same parties were set down in my locality, and obliged to make a living from bees alone, they would change their practice or else starve to death. It would not be difficult for me to run a yard so that these useless consumers would consume all the surplus that might otherwise be secured. In fact, some farmers around here who keep a few colonies run them on this plan. One who lives less than a mile from me keeps from ten to thirty colonies, and usually does not secure enough surplus for his own use, some seasons, when I have had a fair crop. He has not had a pound of surplus unless he "took up" some colonies in the fall. Now, for all I know it may be natural for even strong colonies to hesitate or seem to dislike to build comb from full sheets in the upper stories. But what I regard as curious in regard to the matter is the fact that, after the combs had been drawn out, filled, and extracted, the bees seemed still to have an aversion or dislike for them. If the upper story contained part of these new and part natural combs, the latter would be filled and bulged out again before any thing was stored in the others, and this without regard to the position the frames occupied. In some instances I put only two natural combs in an upper story, and, though placed on the outside, they would always be filled first, and this continued all through the season after some of the new combs had

been extracted from three or four times. But the queens seemed to prefer this foundation comb to lay in. They would, in almost all cases, have it filled with eggs as soon as it was built, and some of them were so keen to get brood started on it that they could not wait until the cells were fully drawn out before laying in them. This was a great objection, I found, to having it drawn out below. It made too much room above, occupied with brood. But these new combs, filled solid with brood, were a pretty sight, and they were a fine sight, too, when filled and capped solid full of white honey. The pleasure of seeing and handling these might be classed as one of the things we would not sell for money, even if we could.

I expected that, when part or nearly all the brood-combs were removed to the upper story, and frames containing full sheets put in their place, it would have a great tendency to check swarming, especially if done before the swarming fever was acquired; but I found that here it had no effect whatever to stop or even hold it back. On the other hand, I believe that, in some cases, it induced swarming that would not have occurred otherwise; for in some instances queen-cells were at once started in the upper story; and as soon as one of these was sealed a swarm issued, whether they had cells below or not. Usually, though, with strong colonies, as soon as part of the brood-combs were placed above, cells were started both above and below.

With a number of colonies I removed all the brood to the upper story, and filled the lower story with frames containing full sheets; and every colony so treated swarmed. Five of these colonies were in ten-frame hives that I bought a year ago, and one was in a twelve-frame hive. Two of these colonies swarmed before any cells in the upper stories were sealed, and no signs of cells below.

Some claim that a swarm will never issue with cells in the upper story when there is a queen-excluder between the two stories unless they have also started cells below. But I am absolutely certain that three of my colonies did last season, and I feel morally sure that five or six more did.

A method that did in all cases prevent strong colonies from swarming, whether they had contracted the swarming fever or not, was to remove all the brood, give empty frames below, and use either drawn comb or full sheets in the upper story; and when this was done the bees drew out the foundation more readily than they did when there was brood below, probably because they had no intention of swarming, and this method gave us the largest amount of surplus of any plan I tried. But almost all the colonies so treated built a large amount of drone comb below.

Southern Minnesota.

[I have personally tried a good many different ways of wiring. I have used the

perpendicular and the horizontal plan, wires close together and wires far apart, wires coarse and wires fine. After testing, on a large scale, all the different methods, I came to the conclusion that, with medium or light brood foundation, four *horizontal* wires give the best results, all things considered. But in the use of *very light* foundation for brood purposes, *perpendicular* wires about 36 gauge and two inches apart gave better results. I believe the time will come when manufacturers will put out an extra-light weight of wax with the wires already incorporated in it, and so arranged as to hang horizontally when the foundation is in the frame. But at the present time the makers are not able to incorporate the wires into such thin sheets without making them cost a great deal more per square foot than the ordinary light brood foundation.

This question of useless consumers is almost entirely a matter of locality. Where the honey-flow continues on through pretty much all the summer, and especially where there is a late summer or fall flow, those "useless consumers" come to be useful producers. But in most localities in the northern part of the United States, in a broad belt-line running from Wisconsin and Illinois through southern Canada to New York and Pennsylvania, it is a waste of honey and a waste of energy to raise very many bees during the midst of the honey-flow, to be useless consumers, as you say, when the honey-flow is over. In the territory named, it is necessary to have large quantities of brood reared from the first of April till the first of June in order to have producers of the *right age* when the main crop from basswood and clover comes on. In many localities in the South, in Texas, Arizona, in some parts of California, Colorado, Utah, and Idaho, the conditions are different. Brood-rearing in such localities may continue to good advantage throughout almost the entire season.

It is, therefore, necessary that every beekeeper should study carefully his locality. If his neighbor is getting honey and he is not, there is something he can learn from that neighbor—no doubt about that. Your own neighbor, for example, if he had studied his own locality as carefully as you, or if he would copy your methods, would be able to get crops where he now fails.

It is a little curious that your bees should apparently show a preference for natural-built combs over those built from foundation for the storage of honey. It is not at all strange that the queen should prefer foundation comb. I can readily understand that; but I *can't* see why the bees should prefer to store in all natural comb. As all our combs for years have been built off from foundation, we are not now in a position to see whether they would really show a preference, and I should be glad to hear from some of our subscribers who are able to give us some facts along these lines. Let us have the truth, even if it is "unhealthy" for us foundation-makers.

My method of checking swarms when running for bees by the bushel, especially at out-yards, where we have no one to watch them, has been to put on an upper story; but before doing so I take out half the brood-combs from the brood-nest, and put them in the upper story. Then I put in one frame of foundation, then one frame of brood, alternating all through the upper and lower story. In our locality I never knew such procedure to fail to keep off the swarming impulse, even during the height of the honey-flow; but I have observed that, when I put all the foundation in the brood-nest or upper story, and combs and brood in the other compartment, swarming would result. So far our experience is the same as yours. My theory is that the bees realize the necessity of bridging the two brood-combs with another comb of brood. The natural economy of the hive seems to abhor a space between two combs of brood. A frame of foundation that stands in between is speedily drawn out; the queen finds it and deposits eggs. The effect of this is to get a large amount of brood and bees. The honey, when it did come in, was converted into brood, and that was what we wanted when we were selling bees by the colony and nucleus. When I want honey, a month before the swarming season I spread the brood as I have suggested, and, just before the honey-flow comes on, crowd all the brood as far as possible into one brood-nest and then put on a super of empty extracting-combs. After the bees have got nicely started to storing, I replace this with a super or two of sections containing full sheets of foundation. Such procedure with wide entrances and plenty of room has enabled us to keep swarming down to a minimum.

—ED.]

QUEEN-REARING.

Preparing Bees to Accept Cups; Two Methods; the Importance of the Prompt Acceptance of Prepared Cups.

BY W. H. PRIDGEN.

One of the most difficult tasks for the average beginner is the grafting of cups, preparing Alley strips, or making transfers of larvæ in a manner that is acceptable to the bees, regardless of the method employed, unless a more intense desire for a queen is brought to bear than exists under the swarming impulse, or any of the arrangements usually employed for the best results in cell-building.

While some become sufficiently expert in imitating natural queen-cups, to be reasonably successful in having them accepted under such conditions, a large majority consider themselves amply repaid for the extra trouble or labor, in both quantity and quality of the resulting cells, to adopt some plan for overcoming the reluctance on the part of the bees in receiving promptly the larvæ given.

One of the essentials in the production of first-class queens is the *prompt acceptance of the larvæ*. *If it is ever neglected to the extent that it is not floating in liquid food during the early stages of development, it never recovers from the check in growth thus caused, and almost invariably results in a dwarf or otherwise defective queen.*

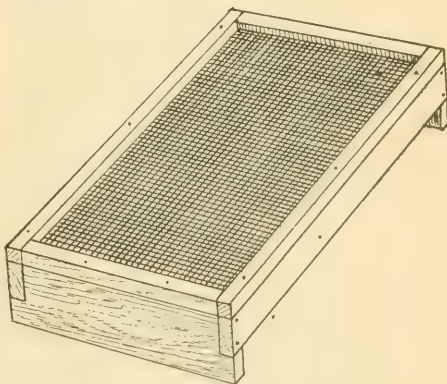
THE QUEENLESS AND BROODLESS METHOD OF ACCEPTING CELL-CUPS IN A CONFINED BROOD-CHAMBER.

Realizing this fact, it is the practice of many to make a colony queenless, and, a day or two later, take from them all the brood, and immediately prepare the cups and give them to the queenless bees. This insures the prompt acceptance of cells however crudely prepared by beginners; but it is slower and less certain than when the bees are deprived of their queen and all unsealed brood at one and the same operation.

When this is done, intense excitement runs high in a very short time, because the loss of the queen is at once realized by all; and those preparing food for thousands of larvæ no longer have them to feed. They at once find themselves hopelessly queenless, and become almost frantic in mourning their loss.

When placed in this condition they will desert their hive and unite with other colonies, if there are any near them, unless they be confined, which can be done with equally good results, if not better.

The illustrations herewith show a convenient hive-cover and ventilator; and it should be remembered that it will not do to confine them without ample ventilation, as their restlessness increases the temperature of the cluster, and soon leads to suffocation without it.



THE HIVE-VENTILATOR.

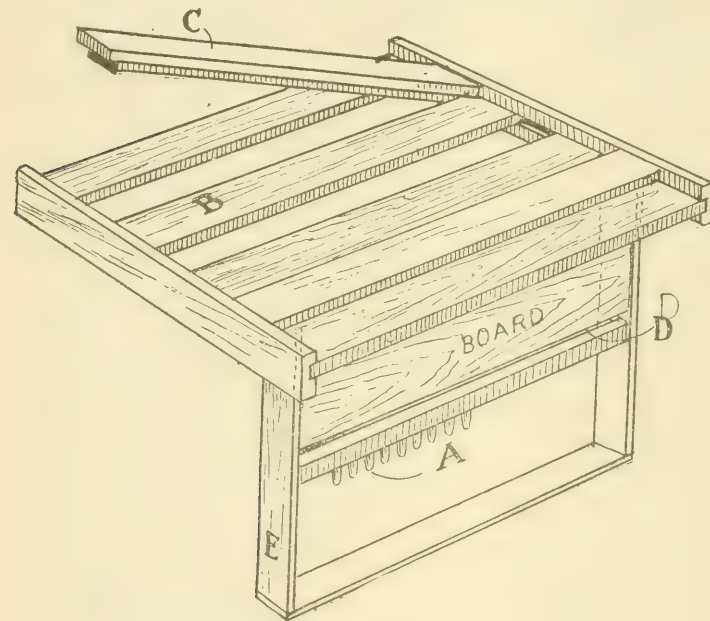
The hive-ventilator is a square frame with the end-boards wider than the sides, so when placed on the ground or a flat surface the air can pass under it. On this frame is tacked wire cloth with $\frac{3}{8}$ -in. strips above to form a bee-space between the bottom-bars of the brood-frames and the wire

screen. By removing one of the end strips we should have a hive-bottom with the bottom made of wire cloth instead of a board, with the entrance at one end as usual; but as it is designed for confining bees for the purpose of accepting cups or to carry them from one location to another, and at the same time afford ample ventilation, the picture very plainly shows how it should be constructed.

As will be made plain further on, the hive of queenless bees is placed on this ventilator from above; a queen-excluder, with a laying queen, below; or a hive is provided with combs containing honey, a little water and pollen, or pollen and sugar syrup, when no combs containing honey are at hand,

immediately under the openings in the cover for the insertion of the desired number of batches of cups. Each space is provided with a cover or stopper. These stoppers are removed one at a time to insert the cell-frame, and are immediately readjusted so as to prevent the escape of a great many bees. As a stopper is raised, a few gentle puffs of smoke will turn the bees downward, and the number that escape will do no harm so far as the work of accepting the cups is concerned, or the commotion caused by the return of the few that do escape to the hive whence they came.

There is a cell-frame shown under the cover, to give an idea of its adjustment between the combs. A shade-board or an additional cover should be placed over the whole, to protect it from sun or rain, and make it more comfortable for the bees.



THE HIVE-COVER AS MADE FOR THE READY INSERTION OF FRAMES OF PREPARED CELLS.

and the bees brushed or shaken into it from combs containing brood in all stages; and the hive-cover, especially arranged for this purpose, is at once adjusted, so that not a bee can escape.

By getting light and ventilation from the bottom, their efforts to escape are in that direction, and there is not the immediate rush outward by the bees when an opening is made at the top of the hive that there would be if the hive were ventilated at the top instead of at the bottom.

The cover is made with slots or spaces through which to insert the cell-frame, and they should be arranged the right distance apart for the slats or bars dividing them to cover exactly one or two brood-frames according to the wishes of the operator.

In arranging the combs in the hive, enough are left out to form the number of spaces

of a U-shaped tin slide resting in the slot over which the cell-bar is placed, and then the tin slide withdrawn endwise, which is very nice and convenient; but changes, improvements, and short cuts are following each other in rapid succession, and a better arrangement for accomplishing the same results by more simple manipulations will soon follow.

As stated above, a hive provided with combs containing honey, pollen, and a little water (enough being omitted to leave spaces for the number of frames of prepared cups to be given, as the latter should be alternated between the combs) placed on the ventilating-hive bottom is ready for bees from any normal colony. After finding the queen and setting the frame she is on to one side, so as to be sure of not taking her with the bees, simply shake the bees from

Since making the fact known that confined bees on combs were used here to insure the prompt acceptance of cups, by at first simply using an oilcloth and ordinary cover over the frames, the idea has grown in popularity until a number have devised plans for adjusting the cell-bars over the slots in the cover, and withdrawing the slides to admit the bees to the cups, and thus overcome the escape of any bees whatever. Mr. H. E. Hill, editor of the *American Bee-Keeper*, was the first to accomplish this feat by the use

four or five combs into the ventilated hive; put on the cover, and in four to six hours these confined bees will accept and properly shape one to three batches of cups, the number accepted depending on the force of bees.

After they begin to reconcile themselves to their queenless condition the less inclined they are to accept a large number, or abundantly nurse those accepted, and hence we need to give the prepared cups while the excitement is at its height.

Another consideration is, that more will be accepted and sufficiently nursed for a few hours than will receive attention later on. Therefore the bees, to accept them, should be prepared about nine or ten o'clock in the morning; the prepared cups, give about one or two o'clock, and then transfer to the cell-building colonies late in the afternoon of the same day.

As above described, it will be noticed that this hive-cover is especially prepared for this purpose, the spaces between the combs for the reception of the frames in which are the prepared cups, being arranged directly under the openings or slots covered by the narrow strips or stoppers. One of these is removed at a time, the bees gently smoked down, and the frame containing the prepared cups inserted, the operation to be repeated until the desired number be given, and thus prevent the escape of a great many bees. Of course, this work should be done as rapidly as possible consistent with deliberation and gentleness, and each opening covered as soon as the cups are inserted.

In this way one, two, or three batches of cups may be given to the same bees, and, late in the evening, be transferred, with adhering bees, to the colonies prepared for cell-building, and then remove the hive from the wire-screen hive-bottom, or ventilator, and place it over the hive whence the bees came.

Such a swarm as described may be drawn from a number of colonies, provided care is exercised in not getting a queen with them, or they may be shaken from combs above excluders with laying queens below, and especially if said combs contain brood.

When this is done, the bees, after the work of accepting the cups is over, can be disposed of by placing them over any hive desirable, with safety to the reigning queen.

UPPER STORIES FOR THE ACCEPTING AND REARING OF PREPARED CELL-CUPS.

The foregoing is for use in cases of haste or emergency; but a much less laborious plan to accomplish the same end is in preparing a hive as is the case when cells are built above an excluder with a laying queen below; for, by the use of queen-excluding zinc, nearly all the operations in queen-rearing can be accomplished without having to find a queen. To get a colony in readiness to accept cups, simply shake the bees from enough combs of brood to fill a hive, and place it over a populous colony with only a queen-excluder between, with

a laying queen below, as has been so often described for cell-building. These combs of brood are drawn from any colony or colonies in the apiary, and replaced by frames filled with foundation or empty combs. The bees are simply shaken and brushed from them without having to find the queen or queens.

The bees in the bottom story over which they are placed will at once take possession, and, as soon as the brood is all sealed in this top story, it can be placed on the ventilator and the combs thoroughly examined for queen-cells. Better shake the bees from them, to be sure none are overlooked; and, besides, this shaking process and rough handling tends to hasten matters, as a search for the queen immediately follows. Remove all cells, and place the slotted cover on, enough combs having been removed to leave spaces for the reception of the cups. While it is not essential that bees be broodless to accept cups, provided there be no unsealed brood present, it may be necessary for them to be prepared a few hours longer before giving the cups, and the preparation of the bees can be done the evening before, or earlier in the day than recommended in the first case, with the other manipulations to follow at the time given.

As soon as the accepted cups are given to the cell-builders the hive of queenless bees used over the ventilator can again be placed over the same colony as before, with the excluder between, and the operation repeated as often as desirable.

To keep this colony in a condition for continuous work as cup-accepters, it is necessary to fill another body with combs of brood as before, and place it on the excluder with the first one above it, until the brood is all sealed in the second lot of combs. After this is done, and before the brood in the second lot is sealed, the bees should be shaken from two or three of the second lot of combs into the one placed on the ventilator, to start the necessary excitement in it, when the latter is set off to make ready for the acceptance of cups. By the time the brood in the second set is sealed, the bees will have emerged from the first set, and the latter can be disposed of, the queen-cells removed from the second set as recommended, with the first, the second used over the ventilator, and another set placed under it for the brood to become sealed. Thus managed, the same hive can be used the season through, and the combs and adhering bees, whenever a set is removed as above described, can be used in forming nuclei.

The idea is to use bees for accepting cups that were only a few hours previously deprived of unsealed brood and queen, either by taking them from the queen and brood or the brood and queen from them and thus have them in a condition to accept larvæ at once, in a hole in a block, or wherever found, regardless of the crudeness of the transfer or preparation.

Creek, N. C.

[See Editorials.—Ed.]

THE STINGLESS BEES OF CENTRAL AMERICA.

An Interesting Description ; their Habits, their Honey, and their Combs ; Sealed Brood Eaten by the Natives as a Delicacy.

BY H. N. CROSS, M. D.

It is some years since I was in Central America, but I suppose the bees there have not changed their habits to any great extent. My first experience with them was while spending a vacation on the "Finca Playa Grande," in Guatemala, where I was annoyed almost beyond endurance by the smallest variety alighting on my hands, neck, and face, drinking up the moisture of perspiration. The temperature there near the coast in December is about 105 to 110, often going away up, even in the shade of the forests, and perspiration is quite active.

These bees are smaller than house-flies, and continually buzzed about us in clouds. They have no stings, have a greenish appearance, but, when closely examined, they showed spots of reddish brown on the abdomen, with greenish down on the thorax. Their tongues, I remember distinctly, were very long in proportion to the insect—somewhat similar to the bumble-bee.

They make their nests in crevices in dead wood, rocks, bark, or dirt, but never rear large colonies, being content with an unlimited amount of swarming. In some localities these little colonies are exceedingly numerous, the little bits of comb in the clefts of trees being plainly seen if looked for, the bees being in countless millions. Their comb is in little thin sheets, leaf-shaped, probably $\frac{1}{8}$ inch in thickness, very delicate, and beautiful to look upon. Honey is stored in this in quantities only sufficient for their immediate needs, as they seem to think the continuous summer a guarantee that no surplus is necessary.

The so-called "wild bee" of Central America is somewhat larger than a common house-fly, perhaps half the size of our honey-bees. They are brownish, with golden markings in stripes across the abdomen; have no stings, and enjoy a peculiar squatly look as if their legs were too short for them. When chopping at a bee-tree they go almost frantic, flying into the chopper's mouth, ears, eyes, and nose, into all openings of his clothing (which is exceedingly scanty), making it almost impossible to work. And, by the way, these "bee-trees" are almost always down already, as in the clearings for cultivation it takes two or three years to get rid of the wood. In the forests, if there are any nests they are invariably so high up that nobody ever finds them.

These nests are always divided into two apartments—one for brood and one for surplus. The brood is in comb perhaps $\frac{3}{8}$ in. thick, and is built from the *sides* of the hollow, springing out, layer after layer, till the cavity is filled from the middle to the

bottom. These cavities are never larger than would hold a quart, and are generally spindle-shaped, as though the bees had done a great deal of the work themselves, and had made it of a standard design.

The upper half of the cavity is filled with surplus, and here is where the most peculiar part of their habits occurs. Instead of being stored in comb, the honey is put in large wax globules or capsules, of a size equal to the average pecan-nut, and about the same shape. The walls of these capsules are about as thick as ordinary cardboard. If the tree is opened nicely, these globules look about like a heap of nuts or marbles, some of creamy, others of brownish color, and all shades between. The bees do not seem to fill the interstices between the globules with honey, using them for passageways when putting in and taking out the honey.

I never saw any honey lighter in color than molasses (New Orleans type), and it has a rank taste as if a good deal of pollen had been mixed in with it.

The natives do not seem to care much for the honey, but cut out combs of brood and bite into them as a small boy would into a slice of bread and jam. To see them with the mashed-brood juices running down from the corners of their mouths is not a pleasant sight.

There are several other sizes of honey-gathering insects in our tropical countries, but the above were the only ones I had the pleasure of examining closely. Probably the last described could be "domesticated," and encouraged to build their nests in boxes; but it is very doubtful whether they would store their surplus in comb as our bees do.

I am sorry I could not send you photographs of the above; but at the time I was there I had no camera, so the description will have to do. However, the black and gold bumble-bees here do very curious work in old wood, and I can photograph some of it if you wish.

Livermore, Cal., Apr. 14.

[Some years ago we obtained a colony of stingless bees from the South. They produced globules of honey such as are here described, that were very beautiful. If it were possible to bring these bees under domestication in the North to such an extent that they would pile up a lot of these globules of beautiful honey, I imagine we might sell such globules for a cent apiece, thus getting an enormous price per pound for the honey. Perhaps our friends in Texas and other parts of the South, where honey is light-colored and of good quality, could manage to bring these bees under cultivation; then if they can get some of these beautiful mouthfuls of honey I will see that they get a good market price for them. If we advertise them as stingless-bee honey, and show them up as so many beautiful chunks of confectionery, I will guarantee that they will sell.—ED.]



RAMBLE 203.

In a Native Cuban Apiary.

BY RAMBLER.

From my observations on the west end of the island of Cuba I would say that bee-keeping according to the native plan is disappearing. While there are several such apiaries we hear that this one or that one is being transferred to up-to-date hives, and will be managed according to up-to-date methods.

Near the seaport town of Mariel is a large apiary worked according to the old Cuban plan, and in this Ramble I propose to take you through it and show you how they manage. This apiary is nicely located in the shade of a variety of tropical trees, and numbers nearly 400 colonies. It was impossible to get a general view of the apiary; but I photoed enough of it to give you an idea of the style of hives in use.

These hives are about 40 inches in length, and eight or ten inches square. With the advent of saw-mills and cheap lumber it seems that the natives now prefer the board hive. But the hive shown in the foreground is the original Cuban hive, and is in exclusive use in some Cuban apiaries. This log hive is made by sawing the royal palm into sections and cutting out the center, which is a tough pith. You will observe the manner of mounting these hives horizontally upon the rude supports. A board is tacked over one end, making that the rear, while the other is left wide open.

The bees are allowed to have their own way about filling the hive; and, having filled it to the rear and front in a workmanlike manner, the stronger colonies overflow as shown in the annexed view. At the time of my visit the proprietor had commenced taking the honey, and all of the upper rows of hives had been robbed. It is a very simple operation to rob a hive. The owner approaches a hive much as we do with smoker in hand; and if not a modern smoker it is something like a stew-pan arrangement; or (as Cubans all smoke) the ever-present cigar may be used.

After the bees are driven back, a thin knife with a hooked point is inserted, and a comb cut out and dropped into a broad shallow copper—well, I will call it a kettle. Two or more of these are used; and when one is filled it is taken to the palm honey-

house for further treatment, while the man with the knife fills the other kettles. The board on the rear end of the hive is taken off and the honey is cut from both ends of the hive, or until the worker brood is exposed. Although I was not a witness to it, I am informed that drone brood is also cut out and dropped into the dish with the honey.

In the honey-cabin the honey-comb in the round-bottomed kettle is thoroughly pulverized with a large wooden pestle or pounder. From the kettle the mashed honey is emptied into willow baskets of much the same shape as the kettles—broad and shallow.

Upon one side of the palm cabin is a huge trough ten or twelve feet long. This, too, is made from the royal palm, and sometimes is of such size as to hold several barrels of honey. The baskets with mashed honey-combs are placed over the trough and left to drain. I supposed these baskets would have to drain for a long time, but was informed that the combs, being so thoroughly pulverized and warm, the honey would drain out in half an hour, and the refuse then dumped into an open barrel or into another palm-tree trough, where it could be solidly packed against the day of rendering into beeswax, which operation is performed in larger kettles, according to the boiling process, and under some adjoining tree.

When the trough is filled with honey it is drawn off into the large bocoy outside the building.

As the reader will note, the wax is of equal importance with the honey; and sometimes these Cuban bee-keepers with their crude methods receive quite as much profit from their bees as will an adjoining bee-keeper using all up-to-date appliances.

I am informed that the comparative yield of honey and wax with the native method is in the proportion of 1 lb. of wax to 12 of honey. According to present prices, 30 cts. for wax, 34 per gallon for honey, there is not much choice. I have been informed that, at a time not so very remote, the honey was thrown away as a waste product, and it is safe to say that in some remote portions of the island to-day it would hardly pay to transport the honey through the jungles to market; while the beeswax, being more valuable and compact, could be transported with profit.

When we compare up-to-date bee-keeping with the native method we find the latter simplicity itself. The methods are so crude and appliances so few that there is not much to describe.

In our up-to-date management there are numerous appliances; and, besides, every up-to-date bee-keeper has a hobby which is extolled upon all occasions.

I am inclined to the belief that the native Cuban bee-keeper has no bee-hobbies. If he has any it is in climbing the tall palm

for material to build his palm house, for there is usually one of these huts near the apiary.

In the illustration we have a very good sample of a bee-keeper's hut; and, what about the bee-keeper? According to a recent census of Cuba, 75 per cent of the population are illiterate. While in many instances the Cuban bee-keeper can read, there are many who can not; or perhaps the apiary is owned by an educated Cuban, and is cared for by one who is illiterate.

The reader can readily surmise that, under such conditions, there is not much progress either in bee-keeping or any thing else where the native is concerned. Not a scrap of literature in his cabin, and how barren a home and the minds of the occupants, without books and papers! how narrow their little circle of thought, scarcely beyond the "finca" (farm) upon which they live. Except what has happened to themselves and under their own observation, they are ignorant of the great events that have happened upon the island of Cuba.

And, my dear reader, if you have sentiments of benevolence toward your fellow-beings, there would arise many sad reflections while traveling over the western portions of Cuba. During a wheelride of about 56 miles I counted the ruins of what were once substantial stone houses to the number of 65; but this was on only a portion of a single road; now multiply this by 20, and you can have some idea of the wreck and ruin caused by the Cuban war for independence. Not only isolated farmhouses but whole villages were wiped out. The wiping-out of these homes, villages, sugar-mills, etc., has left many portions of the country desolate. It is in these waste places that the honey flora abounds, and the best portions are being occupied by the

bee-keeper. But this soil is also fertile, and the enterprising agriculturist from the States is buying lands here, and it is only a question of time when they will be re-



A BEE-KEEPER'S PALM HUT.

claimed; and I have an idea that, when these acres are reclaimed and brought under a high state of cultivation, as they surely will be, the honey flora in many places will be curtailed if not wholly destroyed.

In Southern California the bee-keeper has been driven back into the mountains by the agriculturist. I fear it may be the same with the Cuban bee-keeper, except that we have not so many mountains to go to. With the uncertainties of this matter before me I should dislike to give up a fairly good location in the States for one in Cuba; so I am hanging on to my interests in California while I am studying up the possibilities of this island. I want to test the rainy season, the sand-flies, the mosquitoes, the heat, and the health. But I fear that some of my friends here in Cuba are a little worried over the fact that Cuban bee-keeping is being written *up* (of course I can not write it *down*); but I certainly hope that these Rambles will not induce any of the breed of animals mentioned by the editor as settling in an overstocked location in Idaho to ever settle in Cuba.

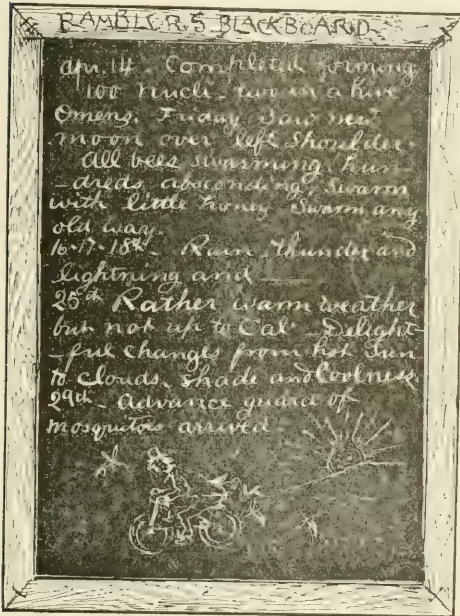
There are two ways in which to find a location for an apiary. One is to sneak around into the neighborhood of a bee-keeper who is doing well, and sneak in an apiary where it will interfere with his chosen field. That is what I call the wrong way—the mean and unprincipled way—the way of the—"hog." It would seem that a hog would consult his own interest, and get into a wider field; but hogs never reason.

Another way to find a location is to consult the bee-keepers al-



ready in the field. Go to them in a fair-minded, manly way, and, ten chances to one, you will be met in the same spirit; and if there is a location you will get it, and there will be no conflict of interests. I grant that an occasional hog may be met on this side too; but I hope they are scarce upon both sides.

The natives here have a peculiar way of treating undesirable animals. See that native with his machete at his side. Let hogs beware. When reason fails, there is always a resort to that wicked-looking instrument.



CLIPPING QUEENS' WINGS.

An Ingenious Device for the Purpose.

BY R. D. WILLIS.

I inclose one of my inventions to hold queens while clipping their wings. When the queen is found, just press this rubber band down on her back. Hold her fast, and you can trim her wings as you wish, with a pair of scissors. I used one of these instruments on 300 queens last year, and did not lose one.

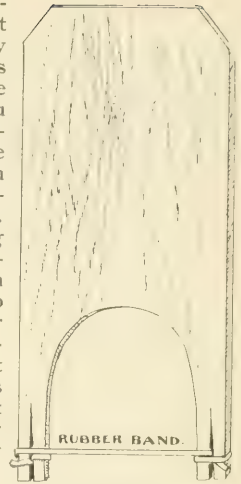
Montrose, Col., April 12.

[This I regard as an exceedingly simple and practical device. It consists of a piece of broken section cut in the shape of a fork, as shown. A small rubber band is stretched moderately across the two prongs, being secured at either end in the manner illustrated. Some care should be exercised in getting a rubber band light enough, and then drawing said band to such a point of tension that it will hold the queen down nicely

on the comb. To determine whether that point is reached, try the device after it is made, on a few of the worker-bees. If you can succeed in holding any one of these down, then you can with reasonable safety try it on a queen. While she is standing still on a comb, receiving the attention of her admirers, clap it down across her back. She will wiggle and squirm; but if the rubber band is adjusted to the right point it will hold her firmly without doing any damage. Now, then, deliberately pick out one of the large wings, pass it between the points of the scissors, and clip. Lift the little tool, and all is over.

I have tested personally this little device, and I consider it all right. While, perhaps, the veterans would not use it, as they have become accustomed to the old way of picking the queen up, yet I am not sure but they might do so to advantage, for it is pretty sure in its action.

Some enterprising supply-manufacturer might make them; but any bee-keeper can whittle one out in three minutes. I wish some of our subscribers would try it so that I may determine whether it is of sufficient value to put in our A B C book; for, be it said, a new edition is now under way.—Ed.]



WILLIS' QUEEN-CLIPPING DEVICE.



WILLIS' QUEEN-CLIPPING DEVICE HOW USED.

NOTES OF TRAVEL.

A Visit to the Home and Apiary of J. F. McIntyre, Fillmore, Cal.; the Most Celebrated Apiary in the World; a few more Remarkable Honey-yields; some of the Secrets of McIntyre's Success.

BY E. R. ROOT.

After leaving Los Angeles, as explained in our last issue, I made my way to Fillmore, near which place is located the most celebrated apiary in the world. Pictures of it have appeared in all the bee journals; and photos showing the mountains towering thousands of feet above the bee-yard are very striking to say the least. In GLEANINGS for Oct. 1, 1891, are given two of the views of this remarkable yard, a yard which contains on an average 500 colonies, and which has maintained that number for the last twenty or thirty years.

It was formerly owned by Mr. R. Wilkin, Mr. McIntyre's father-in-law; but Mr. W. died just a year ago now. But during the last fifteen or twenty years, perhaps, it has been the property and under the management of its present owner. While the location is an exceptional one, the men who worked the bees in it have been exceptional bee keepers—successful, because they have been able to adapt themselves to conditions. Mr. Wilkin acquired quite a prop-

erty; and Mr. McIntyre, I should judge from his general surroundings, is well supplied with the things needful to make one happy and prosperous. All of this has come from the bees. Mr. McIntyre has never yet had to borrow a dollar, for he told me he had never paid any interest money.

But our friend is not successful only in that which goes to make up material prosperity; for with all his wealth-getting he and his family are pictures of health. When I visited him, a little less than a year ago, he seemed to take considerable pride in the fact that he had never employed a physician or lawyer, and the members of the family look as if they had never experienced sickness, got into or borrowed trouble.

While I thought, perhaps, the apiary of Mr. Mendleson, located down deep in the canyon, was more beautiful for its surroundings, yet others, when they come to look at Mr. McIntyre's apiary, might conclude otherwise. I leave the reader to judge as best he may from the photos, which come very far short of showing up the immensity of the scenery roundabout. Fig. 1 is taken off from a high bluff looking eastward, and it is very similar to the one we showed in GLEANINGS on page 772, for 1891, now seen in the A B C book, with the exception that the orange-trees have now grown to be of considerable size—so much so that it takes



FIG. 1.—SESPE APIARY, NEAR FILLMORE, CAL.

a good-sized ladder to reach up into those same trees. Besides the quantities of beautiful fruit they produce, they afford fine shade for the hives.

Fig. 2 shows a near view, giving one a more exact idea of the general arrangement of the apiary. If one will look at No. 1 he will see on the right below the apiary the Big Sespe River—not big in size, but in name; and as the beautiful clear sparkling mountain water gurgles by, one can take in the magnificent scenery and listen to the music of nature to his fill.

A glance at Fig. 1 shows a natural slant of the ground toward the extracting-house, shown over to the right, so that heavily loaded combs can run down to the extractor. As I have before pointed out, this is a common characteristic of the best California apiaries.

As is the case with many bee-keepers' families, Mr. McIntyre's girls seem to be perfectly at home among the bees. Indeed, the little ones would run out among the hives barefooted, utterly oblivious to the fact that the bees were cross that day, and would sting whenever they had a chance. While Mr. McIntyre and I were in the yard with veils on, these little ruddy youngsters would run out among the hives as free and careless as though such a thing as a sting was never known.

One of the secrets of Mr. McIntyre's success is due to the fact that he adapts him-

self to the season, whatever that may be. If there is insufficient rainfall, and he knows by that that there will be little or no honey, he takes away a large part of the stores from each colony, and compels the bees to economize in brood-rearing and scrimp on their meager food supply. When the honey-flow is past, and the bees know there is no more honey to be had (or apparently know it), he gives them back their combs of stores, and by so doing avoids feeding and the rearing of a lot of useless consumers when they would be utterly of no use.

He is not given to any new schemes, such as trying pastures new when his own locality fails. If he has secured a good crop of honey, in a good year, and prices rule low, he holds it in storage, and sells it the next season, which possibly (and even probably) will be poor if the previous season was good. Sage honey is not likely to candy, and is just as good when one year old as when a month old. He manages business so successfully he can afford to hold over the crop, if prices are too low, and then sell when they are right.

By inquiry I learned that Mr. McIntyre has the reputation of somehow making his bees get honey when other bees in the same locality will gather none, notwithstanding he has 500 colonies in the one location. While, perhaps, his average per colony might be larger with fewer colonies, yet considering the expense of going to and



FIG. 2.—SESPE APIARY (NEAR VIEW)

from out-yards, and the convenience of having all the bees together, he concludes he makes more money by massing the bees together.

At the time of my visit he had 610 colonies. He starts in the spring with about 400, and increases to 600 during the height of the flow, then reduces back to 400.

SOME REMARKABLE YIELDS PER COLONY IN CALIFORNIA.

In asking Mr. McIntyre something about the amount of honey California could produce in a good year, he told me of one instance where a Mr. Moffatt actually secured an average of 400 lbs. per colony from 400 colonies, *or an aggregate of 160,000 lbs. or 80 tons.* If this honey sold at 4 cts. per lb., that would make a gross total of \$6400. Mr. McIntyre's average has varied all the way from 15 lbs. per colony, during poor years, up to 275. In 1878 his average was 275 lbs.; in 1880, 175 lbs.; 1884, 100 lbs.; 1886, 175 lbs. From that time on till 1891 the average ran all the way from 10 lbs. up to 60—quite a dropping off. But even taking the low averages, and multiplying them by 500, you will see that Mr. McIntyre is able to get more than enough to pay the interest on his investment.

□ The largest amount of honey that was ever shipped from California was 9,000,000 lbs., or what would be an aggregate of about 300 carloads. It has been estimated that California is capable of producing in a good year 500 carloads. Perhaps that is possible; but the year must be exceptional in many ways. If during the year when the 9,000,000 lbs. or 300 carloads were produced, there might have been 200 carloads consumed in the State, an amount that hardly seems probable. If so, then the aggregate would reach 500 cars. Somehow when I hear about such an amount of honey I

can't credit it, and, if I mistake not, the most extensive and conservative bee-keepers of California are likewise skeptical. But even supposing that only 200 carloads were dumped here in the East—why, the markets would go all to pieces. The fact is, California honey does not greatly affect the market even in a good year.

Now, while I have given some big figures of the possibilities in California, I wish to emphasize what I have said before—that the average bee-keeper in California, I do not suppose, in a period of ten years, secures any more honey for the number of colonies invested than his brother will in some of our more Eastern States—Minnesota, Illinois, New York, and Pennsylvania, for example. As I have intimated before, I would not urge any one to go to California to keep bees expecting to increase his average per colony very materially. Even if the average should be higher, the price on the product will be lower; so there is just as good a chance for a man to make money in the East as there is in California—the State where gold nuggets glitter on the mountain-side, and honey runs like water; but the man who goes to find this expectation realized is almost sure to be disappointed.

THE ORANGE-GROWING BUSINESS.

In Fig. 3 we have a very characteristic view of some of the immense orange-groves in California. This one picture was taken while out driving with Mr. McIntyre, a mile or so from the railway station of Fillmore, and while we were on a bluff overlooking the grove; and as it looks exactly like hundreds of other groves seen in Southern California, I give it here as a fair specimen.

One might think that these groves comprise little trees about as high as currant-

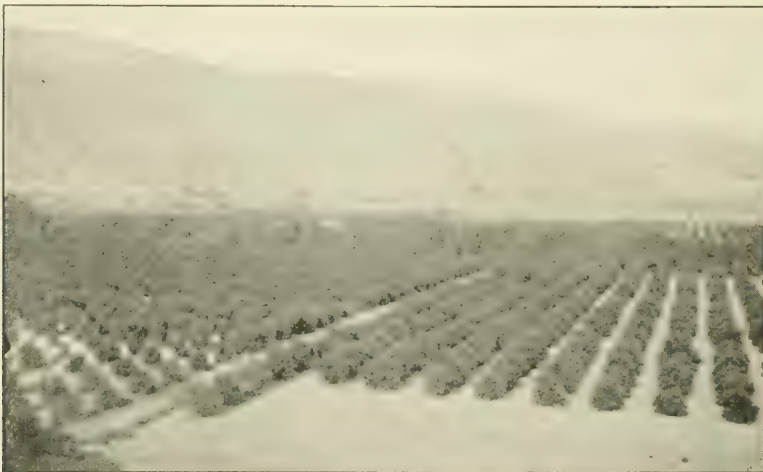


FIG. 3.—ORANGE-GROVE, NEAR FILLMORE, CAL.

bushes in the East, but this is not the fact. Those trees, as shown, are from fifteen to twenty feet high, and are in full bearing. If I could show you in natural colors the deep green of the leaves, and the beautiful oranges peeking through, pulling the limbs down almost to the breaking-point, you would see a very characteristic orange-tree in full bearing.

Irrigating-ditches run in between the rows, and the ground is thoroughly cultivated, just as is a nice field of corn here in the East.

I suppose there is no better property in all the United States than a few acres of orange-trees of bearing age, unless it be some oil-yielding territory or some *real* gold-mine.

In our next issue I will show you life-sized pictures of the celebrated mountain sages of California that produce the beautiful mountain-sage honey; and I will also tell you something about how Mr. McIntyre extracts by water power.

A NEAT RESIDENCE AND APIARY.

BY JULIUS GENTZ.

I send a picture of my 130 colonies of bees, and residence. I keep my hives in straight rows and pairs, so I can use a lawn-mower, and save some room. The yard is located in the city, on the third block from the main street, in the background, where those sheds are. I winter my bees in the cellar



RESIDENCE AND APIARY OF JULIUS GENTZ.

under the house. I haven't lost a colony in eight years. The hives I use are ten-frame Hoffman, and are hand-made. The building on the right-hand side is my work-shop. In the picture are myself and my family.

Shawano, Wis.

A CLOSE CALL UP IN THE MOUNTAINS.

BY E. BONFOEY.

Mr. Geo. Walker (my partner) and myself started out one dark night some seven miles away to the mountains. We had



APIARY OF E. BONFOEY.

hailed three loads, and had come back for the fourth. It was about two o'clock in the morning. We were both tired out, and I saw a sight that I hope I shall never have to witness again. The place where the bees were is known as Hackadorn Canyon, or a big gulch coming out of the mountains. By this gulch my bees were located. We had put on the last load. I stored the bees in the wagon and said to my partner:

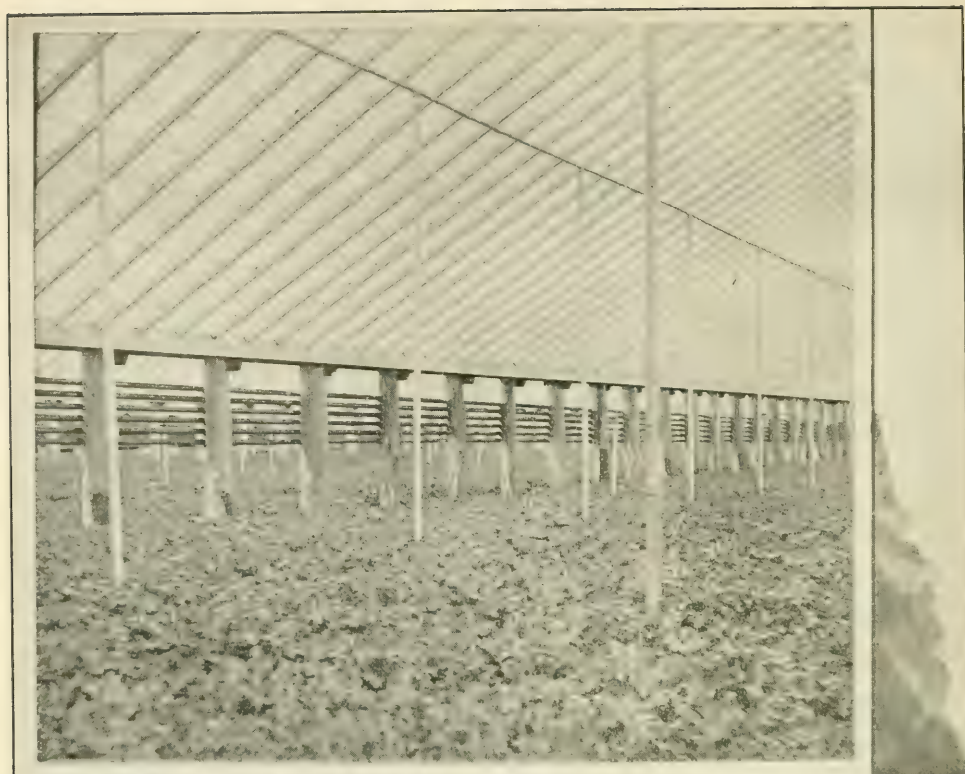
"There is a hive of bees behind a bush."

He started off toward this particular bank. Some of the bees were set about ten feet from the bank. He had the lantern in his left hand. I stood in the wagon watching him go toward the bank. As the bees were a little to the right of where he was going I could see where the bank was. He got within two yards of the brink, when I called out to stop; but as he was in a hurry he did not heed my warning, and walked off the edge. My heart stood still. I never expected to see him again alive. The precipice is 200 feet deep, and 50 feet right straight up and down. Luckily for him, when he walked off he threw up his hands and saved himself from going head first. He landed on his feet in the top of a lot of thick bushes which caught him. It didn't hurt him a bit. I went to the brink and looked over; then I listened, and yelled to him, saying, "Are you killed?"

"No," he answered.

Then I called out, "Are you hurt?"

"No," he said.



INTERIOR AND EXTERIOR VIEW OF EUGENE DAVIS' GRAND RAPIDS LETTUCE-HOUSE. SEE P. 481.

I couldn't believe it. I yelled, "Shall I come down and help you?"

"No," he said. "I will come up pretty soon."

Rambler was on this very ground some nine or ten years ago, and took some pictures of the apiary, and I will send you one.

Corona, Cal.

BINGHAM'S WINTER CONSUMPTION OF STORES.

A Few Figures.

BY T. F. BINGHAM.

The question of cellar ventilation has incidentally brought out statements relating to the consumption of honey by bees in cellars. Like many other opinions relating to bees it is safe to infer that it is not infrequent for theories to be evolved based on slight or uncertain data.

To avoid, as far as possible, the repetition of such supposition I have decided to report what has been done in my own apiary. Every October all my bees are weighed for the purpose of arranging the bee and honey supply for each hive put in the cellar, or winter-packed, as the case may be. I do not wish to combat any long-cherished opinions. I know too well how sacred they are to each individual. It is also well known that, even if subsequent facts militate against them, said opinions remain unchanged. Opinions change slowly.

It may be well to say, to begin with, that my hives are all alike. The bottom-board, which is loose, and the two half-hives, weigh from 21 to 23 lbs. Every additional half-hive, $4\frac{1}{2}$ lbs. This weight includes perfectly empty old combs, such as every colony is supposed to have.

After all are weighed, and the loose honey of the third or lower part is carried up (if the hive is composed of so many parts), full combs of honey are added to or taken from the two upper parts until, as the case may be, the net honey contents of the two half-hives are from 30 to 35 lbs.

I have not, until taking my bees out this spring, weighed them; but as the consumption of honey had incidentally come up I had, on the first day after the one on which they were set on their summer stands, weighed all of them early in the morning before their second day's flight. Every hive had a shingle set up before it, showing its weight. There were 101 colonies, the same number put in the cellar nearly five months before. No other examination of them has been made since, except to see if the lightest of them had honey for their immediate use. They have now been out, when the weather was suitable, one month and four days. Six of them failed, and two more of them will just pull through. It is well to say that no honey but of their own make was used to winter on, and that honey was buckwheat and fall flowers entirely—not a pound of clover or basswood,

probably, in any one hive. Some colonies are extra fine; many are medium, and a few will report later. If no queens break down they will all survive.

Now comes the important and questioned part: How much honey did they eat while in the cellar? They probably averaged from 32 to 35 lbs. to each hive when put in the cellar (whole gross weight being from 50 to 55 lbs. per colony). The morning after their first day's flight their average gross weight was just 35 lbs. The hives were as dry as any unkiln-dried lumber, and showed no evidence of dampness. If the average, when put in the cellar, was as I suppose it to have been, the net consumption of honey was 20 lbs. per colony, probably a little more.

Incidentally I will say that this spring weighing has saved me very much examination work, and has been very satisfactory. I shall continue both fall and spring weighing as a matter of economy in management, to say nothing of its certainty.

To date I have fed one frame each (about $3\frac{1}{2}$ lbs.) to four colonies. All the others have a little, and ample for the present.

Farwell, Mich., May 22.

[Is it not possible that those hives were heavier in the spring than they were last fall, having just come from outdoors where the sun had been shining on them all summer? Twenty pounds of stores for indoor wintering is a large amount. Some careful weighings of indoor-wintered bees at the Ontario Experiment Station, where the winters are longer, showed the average consumption of stores much less, and the result of these experiments is in line with private work. You have an ideal repository, and I should expect it to show a smaller average consumption per colony.—Ed.]



THE ADVANTAGE IN GIVING CELLARED BEES MID-WINTER FLIGHTS.

I see in GLEANINGS of May 1 that your setting your bees out for a flight and putting them back seems to be an unusual occurrence among bee-keepers. I was not aware that such was the case. I have made it a custom to set my bees out of the cellar in February every year in the morning when the day seems to be suitable, and put them back in the evening. I have done so for, I think, every year for the last ten years, and perhaps longer. It makes no difference in what condition they are, whether ever so quiet or uneasy. I watch for a warm day to set them out and then I set them out in front of the cellar-door on planks that I lay down. If the day is warm enough I remove the top covers and let the sun shine in as

long as I dare. Now in regard to the benefit the bees derive from it:

I find if there are any colonies that are uneasy, after their flight they are quiet; and should I have to leave them in until very late in the spring I feel sure that I shall not have any trouble. But this spring I failed for the first time to set them out, for the reason there was only one day that I could do so; but I was called away from home on business that day, which, if I mistake not, was about February 10; and I watched closely for a day suitable during the rest of the month, but not any came. On the 12th of March I set them out on their summer stands and packed them thoroughly in forest leaves, which I had saved for that purpose, and do so every year. I always pack them; even if set out in April they are packed as well as the colonies that remain out.

I always winter about half of the colonies in the cellar and leave the other half out, thoroughly packed in forest leaves. I had fifty colonies in the cellar this winter. The only detriment I find to this practice is that, when the bees are set out on their summer stands after they have had a flight near the cellar-door, a great number of them return to where they were set out first; and as it is too far to take them to their summer stands (about 300 feet from the cellar) and return them at night, I have to put up with the loss.

But I am satisfied that, in the long run, it is my gain on account of the better wintering afterward. I was not aware, as I said before, that this was something unusual among bee-keepers who winter in confinement.

CHAUNCEY REYNOLDS.

Fremont, O., May 12.

[I believe that, as a rule, some of the veterans, at least, have declared that it did not pay to set the bees out in mid-winter, give them a flight, and return them. But practices that were once regarded as orthodox have again and again been set aside, and what was once heresy may be now recognized as *the* thing. Our own experience last winter shows so conclusively, to us at least, that a mid-winter flight is beneficial, I think we shall practice it hereafter. It may do no good with some colonies. It certainly does no harm if bees are put back on their *regular* summer stands; and with many colonies there is a strong probability that much good will be accomplished.]

Our hives are all numbered, and set out to correspond with numbered stakes that were driven just where the colonies are to stand for the entire summer. Of course, the bees have to be carried a little further; but the extra time of walking would not consume more than one and possibly two hours. At 20 cents an hour, this would be only 40 cents.

You do not say whether your cellared bees fared any worse for not having a mid-winter flight than formerly when they did have it; but I judge, because you set them out earlier, you packed them in leaves.—ED.]

AVERAGE ANNUAL CONSUMPTION OF HONEY PER COLONY.

Mr. Root.—You ask in GLEANINGS, May 15, where I base my figures for an annual consumption of at least 200 lbs. of honey per colony. These 200 lbs. cover the amount needed to sustain the life of the bees, to raise the brood, to produce the wax, and to keep up the temperature inside the hive. Hon. R. L. Taylor estimates that the brood requires twice its weight of honey during the time of its growth; the production of wax not less than twice and a half its weight of honey, and, very likely, considerably more. Then a certain quantity of honey, sometimes quite large, is consumed, merely to keep up the warmth of the interior of the hive.

The actual figure of $1\frac{1}{2}$ lbs. daily for all these purposes was computed from the experiments of R. L. Taylor, Demaree, and others, made and published some years ago in several of our bee papers, chiefly the *Review*. Taking into account the honey in the brood-nest, the partially filled section given, the honey fed, the honey taken off and left in the brood-nest, and also the number of days during which the experiments lasted, it is found that the bees have made away with about $1\frac{1}{2}$ lbs. of honey per day for the above-named purposes during the feeding-back period.

Evidently the same amount must be used during the whole period of brood-rearing, and more or less nectar-gathering—that is, from the beginning of fruit-blossom to the end of the flow.

During the remainder of the season, I estimated only $\frac{1}{2}$ lb. per day. If you take into consideration that, even then, some brood is raised, some wax secreted, that the temperature of the colony must be maintained, and that, after all, $\frac{1}{2}$ lb. constitutes a very small daily ration for each of the 20,000 or 30,000 bees which constitute a colony, you will readily conceive that these figures are not very high. You can figure the winter consumption yourself.

I think the $1\frac{1}{2}$ lbs. consumed by the bees experimented on can be considered as a minimum. In the first place the colonies were rather small, at least most of them. Those of R. L. Taylor were sometimes two and sometimes only one Heddon case. The amounts calculated do not include whatever honey may have been brought from the field. This was necessarily consumed also, and therefore increased the daily consumption of that much above the figures given.

I might add right here that $\frac{1}{2}$ lb. of honey for 20,000 or 30,000 bees would be just about enough to fill their honey-sacs once.

ADRIAN GETAZ.

Knoxville, Tenn., May 19.

[As you have figured this matter over very carefully, possibly you are right; but somehow from cursory estimates that run in my own mind I can not quite reconcile the figures yet. Cellar-wintered bees, we will say, will consume on an average about 12

lbs. of stores. This would be from the first of November to the middle of April, in our locality, or five months and a half. There are then six months and a half left. In our locality, 15 lbs. of stores would take care of the bees and the necessary brood-rearing up to the beginning of the honey-flow, or June 15. This would be two months. During this time the bees might gather a very little nectar and only a very little. During the honey-flow they might consume possibly a little more for a given number of days. If before the honey-flow we allow the bees 10 lbs. per month (counting the little they would gather), and during the honey-flow we allow them 15 lbs., that would be only 35 lbs. Now, if we add the amount consumed during five months and a half, or 12 lbs., we have for the eight months and a half 47 lbs. of stores. In our locality, after the honey-flow the Italians, at least, do very little brood-rearing from July 15 till about the first of September; and the consumption of stores would be correspondingly lighter. I should say the amount consumed per month could not exceed 8 lbs. per colony. Let us give them, though, 10 lbs., to be liberal. That would make, up to Sept. 1, 15 lbs. more, or 67 lbs. all told up to Sept. 1. We have two months left; and even if we allowed them 10 lbs. per month for the rest of the month, which would be very large, we should have only 87 lbs. But let us go still further, and give the bees the benefit of another 13 lbs., to allow for the wasting activity of the honey-flow when the fielders might be heavy feeders, and call it 100 lbs. I believe I have figured liberally, for our locality at least; and yet we have only *half* the amount that you allow.

In Tennessee and other Southern States, as well as some of the Western, where the bees can gather some nectar from six to seven months in a year, the bees certainly would consume more stores, because brood-rearing would continue on much of the time; and it is a fact, too, that, during the winter months in the warm States, where the weather is mild, and bees can fly almost every day, the consumption of stores is very much greater than in the North, where the bees go into a quiescent sleep. It is possible, therefore, that 150 or 200 lbs. *might* be the correct figure for the amount of honey actually consumed by a colony of bees in a year for the warm or Southern States. I believe I am safe in saying that the consumption will be much greater south than north, so this question that is before us is largely one of locality.

I should be glad to have my figures reviewed by any one else in any locality in the belt lines of the North and South, anywhere from Minnesota to New York. In the buckwheat State of New York we must, of course, allow for a large consumption of stores; for buckwheat follows clover and basswood, and the activity of the bees is kept up to a much higher point.

This is an important question, and it

may be well for the experiment stations to take hold of it. It is important and practical, because, as Mr. Getaz has pointed out in a former article, if a colony of bees can increase its aggregate gatherings by a very small percentage, it means a much larger percentage of gain in the actual amount of surplus taken off for market.—Ed.]

THE MILLER REVERSIBLE BOTTOM-BOARD; LARGE ENTRANCES.

If Dr. Miller would be so kind as to answer the following questions he would confer a great favor on the writer:

1. Do you still *make* and use the Miller bottom-board—i. e., two inches on one side and one inch on the other?

2. If so, would not the two-inch entrance *for summer* be as good as if not better than the Root $\frac{3}{8}$ -inch entrance?

3. Do you think the $\frac{3}{8}$ -inch (Root) entrance *for winter* just as good as your two-inch?

I am making some bottoms, hence would like to know if, in your opinion, the two-inch entrance for winter is necessary, or if the $\frac{3}{8}$ -inch entrance is just as good.

I use the Miller bottom-board, and like it much for *wintering*. A. MCGREGOR.

Inglewood, Ont., May 8.

[Dr. Miller replies:]

1. I never made the bottom-board with one side one inch deep. It was two inches deep on one side and $\frac{3}{8}$ or $\frac{1}{2}$ on the other. I still make one side two inches deep, but have no depth on the other. That is for the purpose of avoiding the time and labor of reversing. When it comes time in the spring for a space less than two inches under the bottom-bars, instead of reversing, the space is partly filled up by shoving in a false bottom made of thin stuff much like the bottom-board, only on a smaller scale. In a pinch, one or more dummies or pieces of board may be shoved in to fill up the space.

2. Yes, I like the two-inch entrance for summer, if you can call it a two-inch entrance; for when the false bottom is shoved in, a good part of the entrance is closed. When, however, the hive is raised on four blocks during hot weather, that increases the size of the entrance.

3. Very far from it. With a two-inch space under the bottom-bars the cluster of bees of a strong colony often comes down upon the floor in winter, and of course a shallower space would not allow so free access of air, and I suspect the value of that is not yet fully appreciated.

I am just a little afraid that you are thinking of allowing the two-inch space under the frames during the summer. That wouldn't do at all. The bees will be sure to build down within a bee-space of the floor when the two-inch space is left, and what they build will be mainly drone comb. This year some of my colonies that had the two-inch space left during fruit-

bloom filled the space with comb, and had a fine lot of drone brood. You might think that, when a hive is raised on blocks, making a space of an inch or more, comb will be built under; but I never had that happen. The bees seem to think it is not worth while to begin building in so shallow a space.

HOW BEES ARE POISONED WHEN SPRAYING IS ADMINISTERED DURING A HONEY-FLOW.

Mr. Root: — I am having a little trouble about my bees, and will ask you a few questions. Last December I put 21 colonies of bees in the cellar under my house. This spring, about the 10th of April, I took out 20 nice lively colonies. All came out dry, bright, and healthy. One died in the cellar; and now within two weeks I have lost eight colonies by their losing their queens. I noticed some of my bees acted queerly. I looked them over and found plenty of worker brood, but no young larvae or eggs, and no queen. Sometimes I have found the dead queen near the entrance of the hive. Now, what I wish to know is, if bees get poison will the queen be the first or one of the first to die? The bees all had plenty of natural stores.

Please tell me if there is any way I can have my dead bees or honey analyzed; and if so, where had I better send it?

S. E. SCOFIELD.

Enosburg Falls, Vt., May 6.

[This is a very clear case of poison, for the symptoms tally almost exactly with the cases of bees poisoned by spraying-liquids. In such cases the queens are almost sure to be the first to succumb. Young brood disappears or fails to mature.

There is nothing you can do if there is no anti-spraying law in your State (and I think there is none) but to give your neighbors such spraying literature as we are prepared to send out free, and urge them to spray *before* and *after* bloom.

But you should see to it that concerted action on the part of bee-keepers is made, looking toward an anti-spraying law. Such men as A. E. Manum, Bristol, and J. E. Crane, Middlebury, your State, will be able to give you substantial assistance, I have no doubt.

Last year, I think, we had hundreds of reports almost exactly like yours; but not till the latter end of the season did I really "get on" to the cause of the trouble. It is the same old story every time.

With regard to having your dead bees analyzed, you might submit them to your State chemist if you have one. But they should be sent on at once, together with samples of the poisoned brood.—Ed.]

A BUNCH OF SEASONABLE QUESTIONS.

1. Please tell me how to prevent bees from spending all their time "swarming," instead of storing honey?

2. How can I transfer them from old dirty hives to new clean ones?

3. I shaded my hives and packed straw around them. When opened, all hives had live bees; but hives and combs were moldy. What caused it? How can I clean hives?

4. Will bees do best in a *house*, or in scattered hives in a field?

5. Last year I had several swarms leave the hives after having been in from two to six days. Some had built combs, and then deserted. What caused it? Others in this vicinity had same experience.

6. How do bees get foul brood first?

Berwick, N. S.

D. C. CROSBY.

[To answer this question fully would require a little volume; but I might give a few pointers. If possible, there should be only young laying queens in the apiary. Be careful not to let the bees get crowded for room at any time. Keep ahead of them. Give a good large-sized entrance, $\frac{3}{8}$ by the width of the hive. If you have one of the old-fashioned narrow entrances, lift the hive off the bottom-boards and set under four $\frac{3}{8}$ -in. blocks during the hottest of the weather. If hives stand in the hot sun, put on shade-boards, or, better still, arrange to have the hives located in the first place under some trees that will leaf out just in time to cut off the hot rays of the sun. As a matter of convenience, keep the wings of all queens clipped.

2. That is easy. Just take them out of the old hive and put them in a new one. But perhaps you inquire as to the *modus operandi*. My method is to lift the combs out, grabbing three at a time. This can be done very readily if the frames are the Hoffman self-spacing. Set them down in a clean hive; pick up three more and set them down, and so on, until all the frames are in. Move the old hive off its stand, and put the new one in its place. Dump the old hive in front of the new one. Clean it out inside with a scraper. If you wish to make a good job, use a kettleful of boiling water, scalding around the inside. This will clean it as well as disinfect it to a great extent. The hive may now be used for the next colony.

3. Combs from colonies that winter outdoors are apt to show in the spring a thin coating of blue mold. It does no harm; and the very fact that it appears on the combs of all strong colonies that are in a normal condition is an evidence of good wintering. As to how to clean the hives, see answer to No. 2.

4. I suppose you mean whether the bees will do better in a house-apiary or outdoors, each hive having a separate stand of its own. As a rule it is more convenient to handle bees outdoors; and on the ground of economy the field plan is very much cheaper than the other.

5. Newly hived swarms are quite apt to behave in this way at times, especially if the hive is all new, and nothing but empty frames or frames of foundation are given. A new swarm should always be given a frame of unsealed brood and put into a hive

well shaded; and it is our practice to give them twice as much room as they require at the start, sometimes leaving the cover tilted in such a way that there will be a free circulation of air through the entrance and at the top. After they get "calmed down" the cover is adjusted to position, and the bees are then watched for a day or two to see whether they will begin work or sulk. If they act uneasy, and seem disposed to "light out," put an entrance-guard over the entrance to hold the queen if not clipped. If they swarm out, hive somewhere else in a good shady place, giving them a frame of young larvæ as before directed.

6. Yes. The disease originates from a bacillus, or microbe, which *possibly* may float in the air, but which is probably transmitted through honey, combs, or hives received from another apiary.—Ed.]

THE UNITED STATES CENSUS REPORT OF BEES AND HONEY.

When the United States Census Bureau gave out its first report it was doubted whether Texas had exceeded California. Now that the report is published in full, there is no longer any mystery about it; for, according to the report, in 1900 there were, in the United States, 4,109,626 colonies of bees that in that year gave an average of 15 lbs. of honey to the stand, and were valued at \$2.50 each. Of these, there were in

Texas	392,622
North Carolina.....	244,539
Tennessee	225,788
Alabama.....	205,369
Missouri.....	205,110
Kentucky	203,820
Georgia.....	187,919
New York.....	187,208
Illinois.....	179,953
Pennsylvania.....	161,670
Ohio.....	151,391
Virginia.....	139,064
Iowa.....	138,811
California	125,444
Indiana.....	117,148
West Virginia.....	111,417
Arkansas.....	111,138
Missouri.....	106,090
Michigan.....	100,397
Mississippi.....	95,143

This table will afford interesting reading, as it shows that sections that have received no notice have in them more bees than others with an international reputation for honey. E. H. SCHAEFFLE.

Murphys, Cal., May 5.

[The enumeration of colonies for the various States only goes to show there is something wrong with the report. Alabama, for instance, is credited with more colonies than Pennsylvania; and California has a much smaller number than some States that have never distinguished themselves in honey production.

The facts are, there are a good many beekeepers in California who own nothing but their bees. They are away back in the mountain fastnesses, and the tax assessor never finds them.

Nor do we find in this list Colorado, Nevada, and some others of our Western States that can outstrip some of the Eastern sisters several times over. While possibly no State is credited with more colonies than it has, it seems, judging from our books, and from the general correspondence from various States, that the figures above given are far from correct. North Carolina, for example, can not, and certainly does not, have twice as many colonies as California; but it is possible in the Southern States that the assessor gets track of *all* the colonies in the State, while in California he finds only a small portion of them.—Ed.]

USE OF ENTRANCE-GUARDS DURING THE SWARMING SEASON.

Please tell me whether entrance-guards can be used to prevent queens from going out with the swarms; and, if they can be used, what would be the results if left on during the whole swarming season?

W. W. BROCKUNIER.

Sewickley, Pa., Dec. 9.

[Yes, entrance-guards are very frequently used in lieu of clipping the queen's wings. We use them during swarming when we can not afford to take time to hunt up the queen that may have just begun to lay. We clap on an entrance-guard, and that queen, although not yet found, is as good as clipped. No harm will result if the guard is kept on during the whole season; but it should be removed after the swarming time, as it obstructs, to a certain extent, the flight of the bees. As a rule we prefer to clip the queen's wings on the ground of economy, and because that plan gives a free unobstructed entrance during the height of the honey-flow.—Ed.]

THE WORST SPRING IN YEARS.

This has been the worst spring for bees that I remember during the 33 years I have kept bees. We have had but one warm day, when the mercury went to 80 at 3 P.M.; but before the next morning it had dropped to 28°. This was May 2. The 8th it commenced to snow, snowing more or less during the forenoon. In the afternoon it cleared, with a gale blowing from the north, and the mercury standing at 34 at sunset. We hoped that, if the wind kept up, our peaches, plums, and pears, which were in bloom, would be spared. The wind did keep up, but it continued to grow cold till nearly 7 o'clock the next morning, when the mercury stood at 22°, or ten degrees below freezing, and every thing which was "killable" by frost was ruined. Ice formed fully an inch thick; and at the cottages along the shores of our lakes, where the high wind blew the spray against the docks

and buildings, icicles formed an inch in diameter and a foot or more in length. This was Friday night and morning, and it kept so cold that those icicles still hung there up to Sunday noon, May 11, it freezing nearly as hard Saturday night as it did the night before. Monday morning there was a white frost, but Monday night it did not freeze, but rained a little. It turned cold on Tuesday, the 13th, and on Wednesday morning we had ice three-eighths of an inch thick; and this morning, Thursday, May 15, the ice was three-sixteenths thick. The bees have not gotten any nectar so far this year, and, as nearly as I can ascertain, the embryo basswood-blossoms are all killed, for they seem of a brown color at the base of the incipient leaves. Therefore it does not look as if this locality would overstock the honey market the coming fall.

G. M. DOOLITTLE.

Borodino, N. Y., May 15, 1902.

Later, May 28.—After our freezing weather from May 8th to 16th it began to warm up so that we had fairly comfortable spring weather till the middle of the week beginning May 18th, when we had a light frost. This was followed by warmer weather, when it turned hot, Friday and Saturday, May 23 and 24, the mercury reaching 80 and 87 degrees respectively, followed by fine rains. This set me to hoping that we had seen an end to the cold weather, and I started nuclei for queen-rearing. But with the afternoon of May 26th it turned colder, with clouds and winds, till the night of the 27th, when it commenced snowing, with the mercury at only four above the freezing-point; and it is still snowing as I write this, at 10 A.M., having now snowed nearly 18 hours, and the mercury stands at this minute at only two degrees above the freezing-point. The bees in the formed nuclei have been obliged to draw compactly together to keep warm, which means the spoiling of all the brood given them. As I diagnosed on the 16th, the flower-buds on the basswood were all killed before that time; and it now proves that the larger portion of the new growth of twigs was also killed, so that the trees have the appearance of a fire having passed lightly through them, the injury of which will last for several years. Unless we get honey from clover again, there will be no white honey this year in this locality. G. M. D.

IS IT A CASE OF POISONING?

I take the liberty of asking you a question: Yesterday something ailed one of my hives. All the bees clustered out, and then fell, a good many of them being dead. What is the reason?

As to the Spanish names in GLEANINGS for April 15, I will say that here in Mexico they do not speak the Spanish of Spain, but something like it. The right name for Spanish is Castilian (Castillano, pronounced Cahs-teel-yah-no). The names you

give to the shrubs are right, as pronounced here. EMILIE ASTIE.

Tlalpan, Mexico, April 29.

[Not being familiar with the conditions in Mexico it would be impossible for me to suggest why the swarm of bees should suddenly fall after having clustered, and the bees died. It may be that they had been poisoned. We are glad to know that the pronunciation of the plants referred to is properly given.—Ed.]



April 19, 1902.—Just as I am about taking my trip to Northern Michigan I have instructed the folks at home to use the following kind letter for a Home paper in case any of my communications should be detained or delayed, using the text:

Husbands, love your wives, even as Christ loved the church, and gave himself for it.

Mr. A. I. Root:—Dec. 1st issue of GLEANINGS has come. I have read Our Homes in it, and feel so much benefited by it that I should be letting a golden opportunity pass if I did not indicate to you the intrinsic merit your article contains. It comes to me as the cooling waters trickling down the side of the great mountain, into the arid plain, laughing, sparkling, and singing of the great store of the fountain of life which the Lord has stored up there away from the fouling of carnality, and which he sends in his own good way and time to slake the thirst, not only of the parched earth, but the hungry and thirsty souls of his creatures.

The perusal of your article has taken me up far above the sordid things of earth into a purer atmosphere until I feel like shouting from the top of the mountains, "Husbands, love your wives, even as Christ loved the church and gave himself for it," so that all the world might hear. I'm not in any danger from the thing you name; but being a public man, and going into homes all over this land, my ears are pained and my eyes are wearied to hear and see so much of this hated evil until I want to "cry aloud" against it; but the conventionalities of the pulpit forbid it, or seem to.

On the evening of the day of Mr. McKinley's first election I stood on High Street, in Columbus, reading the bulletins as they were displayed on the screen; and when it was learned that he had enough electoral votes to assure his election, they threw on his picture with his wife beside him. I stood there and cried; and all through his administration the one thing above all others that made him noble was his sincere devotion to her whom God had given him. He was not ashamed that the world should know how he loved her; he loved her and cared for her, petted her, and to-day this great nation is better, purer, and safer for the grand exhibition that he gave of the text, "Husbands, love your wives, even as Christ loved the church, and gave himself for it."

All the glories of conquest by war, the (hollow) honors of politics, fade away before this one grand trait in him. She was frail and weak, and so needed him the more. Here's a text: "We that are strong ought to bear the infirmities of the weak, and not to please ourselves." This he did.

Now pardon me while I speak personally.

My wife lost her hearing when she was 15 years old, and became entirely deaf—does not hear a sound. She took up the "lip language" herself, and goes altogether by the motion of the lips. She can talk well, but must see the motion of the lips of the speaker to

understand in detail what he is saying. I am never happier than when talking to her when I come home. She is the one I tell all the news to. I tell her first; it gives me great experience along the lines you mentioned. Sometimes the light doesn't shine just right, or I am tired, and do not move my lips enough, or have my face turned so she can not see my mouth right; and a dozen other little things go wrong to try us both; but so far I am happiest when with her.

Sometimes I am afraid of myself that it will not hold out. I want it to, and trust it will. She is all the world to me. She is reading all you write, goes with you down to the factory, talks to you as you go about the building, goes back to the house with you to see if you get in Mrs. Root's way. She went with you both up to Michigan, and helped you clear off that farm and build that house. But she's puzzled about that trapdoor. But anyhow, every time she comes back she says, "I tell you, hubby, Bro. Root's a pretty fine fellow." But enough of this.

I know a family where for years the husband has never spoken a word at the table in praise of a thing on it; but don't think he doesn't say any thing. There is scarcely a meal when he does not criticise something. Whenever he speaks about the food it is to find fault with it. When he can't find fault with it he doesn't say any thing. It is very trying to a woman to work hard over a hot stove to prepare a meal, knowing it will not be appreciated by the men. But how cheerily she can go about it when she knows there will be words of praise for it. Those little "pet" words at the table from him for whom she has done it all do her a great deal more real good than paying off the mortgage on the farm. Many a poor wife is *starving* to death in the middle of acres over which she can't see, starving for a kind word from him who promised to love and cherish her. One thing more. I was asked once what I thought the unpardonable sin was. I replied I did not know unless it was that which a man commits by not coming to his meals promptly when they are ready. I do think of all the mean, contemptible things a man can be guilty of, this exceeds them all. It is done much, and about ninety per cent of it is contrariness, the rest unavoidable, perhaps. How often have I heard the man say, when the bell would ring the second or third time, "Oh! well, I'll come when I get ready." If I were the court I would make this offense a cause for divorce with all the alimony she desired, and no questions asked.

Two things in your article I wish to notice as being of especial interest to me. One is where you say, "The memory of this thing I am telling about has made me afraid." You never said a thing in all your life that got as close to me as that. The other is that you are 62 years old—only 62—and here I've been fretting, thinking you were away up near a hundred, and would soon be gone, and we would have no more Home papers. But you're young yet, and will live a long time, to write and talk as only A. I. Root can.

I am minded to write to the *Rural New-Yorker*, *American Agriculturist*, and *Ohio Farmer*, and urge them to copy your letter; and I suggest that Ernest print it in pamphlet just as it is. I'll help put it in every home in the land, for it is true. God is good; his great love is grand.

There will come one blessed morning—
It will shine for you and me;
For brighter are the heavenly glories,
And we'll be there to see.

Wagram, O., Dec. 7.

FRANK M'GLADE.

Many thanks, dear brother, for your exceedingly kind words, and for your bright, breezy, inspiring letter. Give my kindest regards to that good wife, and tell her the "trapdoor" she mentions was described in a former number. We stored our dry wood under the cabin, not having any better place to put it. One stormy evening Mrs. Root suggested that, if I could make a trapdoor through the floor, right in front of the stove-door, we could get our dry wood without going out in the storm at all. With a few carpenter's tools which we always keep in the house I made a trapdoor that evening; and now we can raise this trapdoor and lift the wood from the pile under the floor right into the stove—no litter or dropping of

dust on the floor. When I was keeping bachelor's hall a few weeks ago, whenever I wanted to sweep up dust and ashes from under the stove I just raised the trapdoor and swept every thing down into the "cellar." Of course, I am not recommending this plan for homes in general, but it does very well for a summer cottage or a cabin in the woods.

Once more accept my thanks for suggesting to me your beautiful text. When I wrote my Home paper to husbands about loving their wives I overlooked or had entirely forgotten the fact that the Bible contains any thing that so perfectly covers the ground and emphasizes the very important thing I was talking about. Dear brother, I rejoice that I have been able, through Christ Jesus, to bring happiness into your home; and I assure you once more that your bright letter has brought courage, hope, and inspiration to my life. What a beautiful world to live in this is if we only find it out and grasp the great privileges that the loving Father has placed all round about us within easy reach!



CORRUGATED TRANSLUCENT GLASS FOR GREENHOUSES.

Monday night, April 21.—Mrs. Root and I were in Grand Rapids over night on our way to that cabin in the woods. As our train did not leave until 7:55 A.M., by getting up at daylight I had a chance to visit Eugene Davis, about four miles from the hotel. I got lost in that big city, as usual, but found friend D.'s greenhouse between five and six o'clock. At first, as I got a glimpse of the immense structure I thought some "syndicate" had started an opposition lettuce-plant, and so I asked a passer-by:

"Who owns those great greenhouses, please, over there at the foot of the hill?"

"Why, that establishment belongs to Eugene Davis. He has been located there for years."

"Why, I didn't know he had built on so large a scale when he took down his old houses last fall."

"Oh! he is well fixed, and he makes lots of money, I tell you; and he ought to, for he is a 'worker.'"

They all urged me to sit down to breakfast; but of late, when I take a wheelride "before breakfast" I always have breakfast *first*; and in a great city I can get a meal any time, even just at daylight, without any grumbling.

There are three houses, 30 feet wide and 480 feet long, and a fourth house nearly as long. There are no division walls, so he has a glass-covered field almost 100 by 500

feet; in fact, he uses a horse to work up his ground, and sometimes a span of horses at work under this glass structure. At one time last winter he had *ten tons* of Grand Rapids lettuce ready for market almost at once. One of the three houses is covered entirely with rough corrugated glass; and, I am glad to say, so far it gives as good results, on the average, as the more expensive clear glass. He says a crop of radishes grown during the shortest days of the winter were just as good as those in the other houses. The only objection he has noticed is that the snow does not thaw off quite as soon as with the other houses; but the advantage of glass partly shaded during the time when the sun is too hot more than overbalances this. This glass usually costs a third less than clear glass.

At this time of the year he is letting cucumbers take the place of lettuce; and his cucumber-plants are certainly, in point of tropical luxuriance, ahead of any thing outdoors, or anywhere else, for that matter. Why, I found leaf after leaf more than *a foot across*, and there wasn't a spot or blemish on these great leaves either. No insect, either under ground or above ground, can spoil his crop of "cucumbers under glass." Of course, he has a hive of bees in each house, and the bees were busy on the blossoms at the time of my visit. Some of the cucumbers were gathered ready for market, and a new cucumber is soon to be offered, of Mr. Davis' own originating—a cross between our best White Spine and the long English cucumbers. They are beauties, I tell you, as grown by Mr. Davis. See cuts of these greenhouses, page 474.

OUR HOME IN THE WOODS, ETC.

It is just four weeks to-day since Mrs. Root and I were dropped once more at the door of our little cabin; and these four weeks have been busy ones and (for the most part) happy ones. The deer mice I told you about were our first disturbance. On the night of our arrival, just after we got to sleep, they opened up for a "grand carnival." They were evidently determined to investigate in regard to the contents of every package brought from Ohio. Now, this rattling and rustling of paper packages would not have hindered *my* sleep; but Mrs. Root's loud pounding, to drive them away, did. We talked about poisons, but I declared we must have a cat. Mrs. Root said a cat would get homesick—only a kitten could be made to stay, and a kitten could never handle the "drove" that had evidently "occupied" while we were absent. At a neighbor's, 1½ miles away, a young lady brought me a "kitten" in a bag. When I asked how old the kitten was she said she guessed "about a year." I carried pussy home on my wheel, up hill and down, and through the woods along my bicycle-path; and when we let her out she was just about "frightened to death." We let her down through that trapdoor into the "woodshed" under

the house, and there she stayed for a week or more, until one of the boys left the outside door open; but there have been no more mice since her first night under our roof. After we had mourned her loss for several days, and given her up, she came back one day and seemed very glad indeed of her usual rations, and now she calls occasionally, looks after the mice, and gets "a good square meal" for old acquaintance' sake. These mice are usually *gray* instead of "mouse color," and I caught one that was mottled with white and gray. They are the *quickest* animal I ever saw; for, with any sort of chance, they are off like a flash of light.

HILBERT'S CHICKENS.

Our neighbor Hilbert is the man who has on his letter-heads, "Maple Syrup, Honey, and Strawberries;" and he might add quite a few other things and tell the truth too, for he is a man of new speculations, every little while, and he, by some hook or crook, usually makes a success of them. Two or three times in his life he has had a craze for peach-growing on the hills of this region, so specially adapted to it. Every little while last season he would have spells of talking about a 30 or 40 acre peach orchard; but I always discouraged him, telling him he had already more "irons in the fire" than he could look after; and his good wife rather sided in with me. By the way, I have often told him if it were not for "that wife of his" a lot of his speculations would never have been the "success" they were.

One day, as we were going over the back part of one of his farms, he showed me some scattering peach-trees well laden with beautiful fruit, standing away off by themselves, on land apparently neglected. Said he:

"Mr. Root, those trees have never had any cultivation or care whatever since the year they were put out, and just look at that crop of fine fruit. Can anybody say this isn't peach land naturally?"

You see a lot of the trees were killed by the climbing cut-worm, and he got discouraged and let the whole plantation go; in fact, he hardly went near it. Now that he had had more experience, and knew how to manage, he reasoned that, if these hills had produced such peaches by entire neglect, what might 30 acres do, if properly cared for according to the latest and most scientific methods?

Does somebody feel like saying, "Look here, Bro. Root; this isn't a chicken story at all; what do you mean by such a heading, and then go to talking peaches in the Traverse region, and nothing else?"

Well, now, don't worry, friends. *I'm* running the story just now, and my head is level too (like Mr. Hilbert's). Of course, I couldn't answer his argument, especially while I was breaking and eating those beautiful and luscious Early St. John peaches by the dozen; and in spite of all his wife and I could say he sent in the order for 3000 peach-trees. When I got around

this spring I found he had been studying up poultry-books during the winter and had actually bought and got running a 200 (or over) egg incubator, and was planning to send for *two more* incubators same size. Said I:

"Why, old friend, aren't you getting crazy, to go into this, right while you are rushed all the time with maple syrup, strawberries by the acre, a big apiary at home, and several out-apiaries started? how about the 3000 peach-trees?"

"Oh! that is all right; this is a part of the peach-tree speculation. You see those trees will be all right for a few years, without any added fertility; but to keep them up "High Pressure," we shall need some manure; and the very cheapest way in the world to get the very best manure, and have it right on the land, already spread, is to keep a big lot of chickens, sell them for broilers at a profit, and get the manure free of charge or expense in hauling and spreading. See?"

But I *didn't* see. I said first they would not *hatch* for a green hand at the business; then they would get the gapes and cholera, and they would prove such a care and responsibility if none of these things happened, his poor sorrowing wife would have to take him over to that big State Asylum on the hill—the very institution that has all these years been such a heavy purchaser of all his maple syrup, fruit, and other stuff. What did he say? Why, he just lighted his pipe and said, with his characteristic quiet indifference, "Well, you just wait and see."

When Mrs. Root and I reached "our cabin" this spring it was during that sultry dirt-storm about the last of April. I soon got over to Hilbert's and asked anxiously about the chickens. There had been a good hatch, and not a chick was lost until the night of the dust-storm, when it turned so suddenly cold. They neglected to light the lamps in the brooders, and the chicks huddled up so close to get warm, *seven* were smothered. This is all of his losses, although the Cyphers incubator has brought out three excellent hatches. And now I come to the real pith of my story. In fact, the foregoing is only a sort of introductory to it; the foundation, so to speak. One morning I was over there on some other business, and had started to go home when he said:

"O Mr. Root! I think perhaps you'd better take a look at the chickens before you go."

When he got inside the inclosure I was astonished to see nearly 200 of the finest chicks I ever saw rush up to him, and get around his feet so he could hardly take a step forward. In fact, they acted as if they would almost eat him up. Said I:

"Why, Mr. H., you are surely not feeding these chickens enough. I can't believe it is good for them to get as hungry as this."

He replied briefly, while he reached for a spade:

"Got all kinds of grain right before them all the while."

"Then they want water or something?"

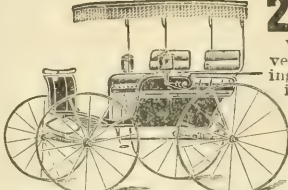
"Yes, they *do* want something, and I will show you what it is."

He turned over a shovelful of dirt, and the "circus" commenced. Their yard was right over some exceedingly rich soil where he had formerly had a hot-bed or something of the sort, and it was full of great big angleworms. A big stout healthy chick grabbed one, and then "legged it" about the yard from one corner to the other, with a dozen or two at his heels. When he played out, a chick with fresh "wind" got the worm, and ran in a like manner. Pretty soon there were in the yard about a dozen "gangs" going through with the same performance. So eager were they in spite of all he could do, every little while some chick would be covered up, and we had to dig them out. As soon as released they were off on the "war-path" with the rest. Why, Stoddard's complicated machinery described in the Egg Farm book to give chickens exercise is *nowhere* compared with Hilbert's invention. You may smile at my calling it an "invention;" but if it is not new, why don't the poultry-books and papers say something about it?

Now, before I end this long "chicken story" (I insist it *is* a *chicken* story) there are two important things I want to mention. The first is, Mr. H. said that, just as soon as those chicks were a few days old, he felt satisfied by their actions there was something *lacking* (a kind of "long-felt want" I suppose); and just as soon as he began digging "worms" for them the aching void was filled, and they could "hop, skip, and jump" equal to any chicks in the world. Let me see. What was that other important thing? Oh, yes! I know. While the men were so very busy planting those 3000 peach-trees, Mrs. Hilbert had to spade up the soft black soil "regular," or the several hundred chicks would "holler" just awful. Well, Mrs. H. told Mrs. Root (confidentially, you know) that those great fat earthworms made her so nervous she could see 'em "wriggle" all night, even after she got to sleep.

Let's see. I promised to stop right here, didn't I? but there is just one more thing I must tell. They have about 150 chicks in a yard. I thought it was almost too many, and predicted trouble. It didn't come, however, until they get large enough so some of them found out they were (or going to be) roosters, and these roosters one day (yes, all in one day) learned to *fight*. Mrs. Root happened to see them just about that time, and she said, "Why, it is just *cruel*, the way those little rascals pull each other's hair."

Now I really must add just one little sentence more to make my chicken story complete. It is this: In a couple of days more they forgot (or got over it) all about being roosters, and didn't fight any more at all. "Good by."



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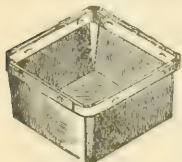
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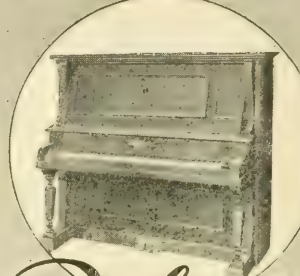
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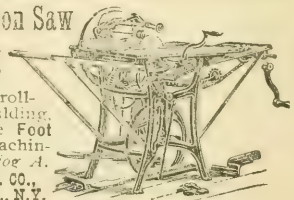
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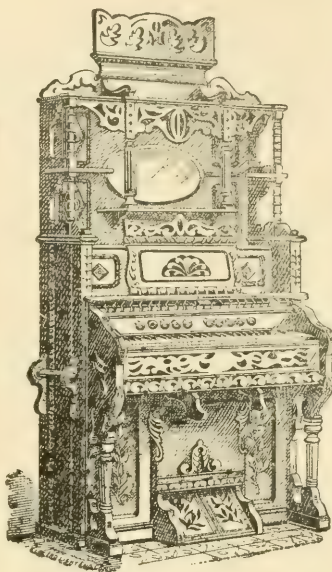
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Old Standbys.—The A. I. Root Co., to whom we have sold queens for many years, wrote us last May, thus: "Are you running low on queens? We hope not, as you seem to be our standbys. Send us 24 per week instead of 12, till further orders."

Beat Any Thing He ever Saw.—The Cyprian queens you sent me last year beat any thing I ever saw rearing brood and filling their hives with honey.—J. Nielson, Huntington, Utah, Sept. 4, 1901.

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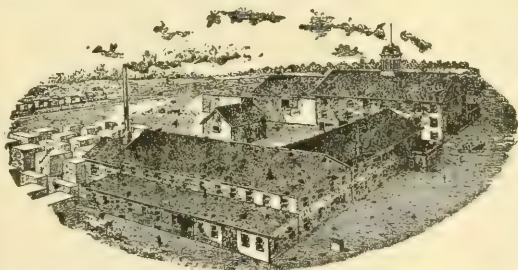
\$50 Queens.—My nice queen that you sent me, and I put in a hive with a handful of bees on the 6th day of last June, has now nearly filled her 30-lb. super for the third time. No man's \$50.00 bill could take her. Please send me another one like her as soon as possible, and keep a dozen ready for me like her for the 20th of April next, and I will make you a nice present.—M. Brown, Station A, Little Rock, Ark.

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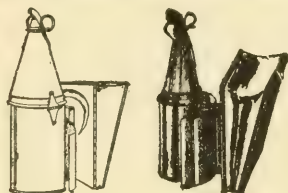
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Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsold by travel-trail or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

SAN FRANCISCO.—Comb honey, 10@12. Extracted, water-white, 5½@6½; light amber, 4@5½; dark, 4@5. Beeswax, 27½@30. E. H. SCHAEFFLE, May 24. Murphys, Calif.

CINCINNATI.—There is hardly any change in the honey market. Comb is not moving much, and whatever is left can be bought at cut rates. Water white is selling at 14@15. Extracted is in fair demand, and finds steady sales in barrels at 5@5½; water-white alfalfa, 6@6½; white clover, 6½@7. Beeswax is coming in more freely, and sells for 28.

C. H. W. WEBER, 2146 Central Ave., Cincinnati, Ohio.

CHICAGO.—The honey market is in a waiting attitude, and there is more comb on sale than for several Junes of recent years, although most of it is out of condition from one cause and another, chiefly by having grained; therefore a very light yield this year would not help the crop now on hand of last. Prices are without special change in either comb or extracted honey from those given in your last issue. Consumers are not in the market for other than small quantities. Beeswax is very scarce, and brings 32¢ upon arrival.

R. A. BURNETT & Co., 199 South Water St., Chicago, Ill.

PHILADELPHIA.—The season is about over for the sale of comb honey, and not enough in the market to quote any price. Not any new arrivals as yet. Extracted honey in small demand, and prices a little easier. California, in carlots, 5½; in a small way, 7c; fancy white selling about the same price. Beeswax in good demand at 29. We are producers of honey, and do not handle on commission. WM. A. SELSER, June 9. 10 Vine St., Philadelphia, Pa.

NEW YORK.—White comb honey is in fairly good demand, and strictly fancy is selling at 14; No. 1, 13; amber, 11@12. Some new crop is arriving now from the South, mostly in limited quantities. There is no change in the condition of the market on extracted honey. The supplies are heavy, while demand is very light. We quote white 5½@5½; light amber, 5@5½; dark, 4½; Southern, 48@53. Beeswax, firm at 31@32.

HILDRETH & SEGELKEN, 265-7 Greenwich St., New York City.

BOSTON.—Stocks are rapidly being depleted, and prices are nominal, but will range about the same as per our last quotation.

BLAKE, SCOTT & LEE, 31. 33 Commercial St., Boston, Mass.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

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E. R. PAHL & Co., Broadway & Detroit Sts., Milwaukee, Wis.

FOR SALE.—50,000 lbs. extracted honey white, 5½c; light amber, 5c; amber, 4½c; in barrels of about 300 lbs. net. Parties wanting large amounts write for samples.

R. L. TUCKER, Blountstown, Fla.

WANTED. Honey and beeswax. Mail sample, and state price delivered at here. C. H. W. WEBER, 2146, 2148 Central Ave., Cincinnati, Ohio.

WANTED. Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co., 199 South Water St., Chicago, Ill.

WANTED. Comb honey in Danzenbaker sections. We can use both white and amber.

THE A. I. ROOT CO., Medina, Ohio.

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D. S. JENKINS, Las Animas, Col.

FOR SALE.—Whitest alfalfa honey, \$9.00; tinted, \$7.80, per case of two 60-lb. cans, net.

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We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.

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W. O. Victor,

Queen Specialist.

Wharton, Texas.

I have told you from time to time what Messrs. E. R. Root, W. Z. Hutchinson, O. L. Hershiser, and a great many others, prominent in apiculture, have had to say in regard to my bees, and I have many similar testimonials that I would be glad to use, but space forbids. I will have to quote, however, from so prominent a person as G. M. Doolittle, as follows:

"I kept one of the queens I bought of you last season, and she approached the nearest to mine of any thing I have had for a long time."

I am filling Mr. Doolittle's order for 40 queens this season, 36 of which have gone forward.

Mr. O. P. Hyde paid me a visit a few days ago, and I invited him to inspect my apiaries with a *critical eye*. I was often pleased at the high compliments paid my bees by him. He said that *he had never seen any thing like it before* (yard No. 1); that the *absolute uniform marking* (3 band) and *gentleness were simply wonderful*. He made frequent mention of the *superior size and beauty* of the queens; and in conclusion stated that I had the *largest and best equipped queen-yard* that he had ever seen, which would include many.

Heretofore I have been very *modest* in my expressions in regard to my bees, leaving their praises for others to sing. I can be quiet no longer, and will have to say that *I know* that yard No. 1 is composed of the *best bees for honey gathering, uniform marking, and gentleness*, I have ever seen, and believe they are as *good as there are in the world*, regardless of the price asked or the reputation of the party offering them for sale. There is not a queen in any of my full colonies that is not *worthy* of being classed as a *breeder*, therefore all my mating drones are of the *highest grade*. The stock is a combination of the Root Red-clover, J. P. Moore, Hutchinson Superior Stock, and *selections* from my stock that I have used for years, and which furnished the *bees that were awarded the diploma at the Pan-American*. I am using as breeders nothing but the *very best* that can be selected from over 100 colonies, all of which have been tested in every respect. One of them headed a colony that gathered right about 400 lbs. of honey last season, and is *still keeping up the lick*.

The increasing demand for queens from this yard since the first of June forces me to advance the price to that asked before June 1, viz.: Untested, \$1; 6, \$5; 12, \$9. Select untested, \$1.25; 6, \$6; 12, \$11. I am out of tested and select tested at present. Breeders, \$5 to \$10, according to superiority, tongue-reach, etc. Queens from Yards 2 and 3 at catalog prices.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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Full line of all supplies manufactured by us.
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Lewis White Polished Sections are Perfect. Last winter's cut of Wisconsin basswood is the whitest we have ever seen. When you order No. 1 Sections from us you will get a strictly No. 1 grade in both workmanship and color.

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A Suggestion. Do not put your money into *new-fangled* bee-hives, but buy a simple, serviceable, and well-made hive such as the regular Dovetailed Hive, arranged for beeway sections. Honey-producers in Colorado, one of the largest honey-producing sections in the world, use this style.

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Golden Italians have no superiors and few equals; untested, 75c; 6 for \$4.00.

Red-clover Queens which left all records behind in gathering honey; untested, \$1; 6 for \$5.

Carniolans, the so highly recommended, being *more* gentle than others; untested, \$1.00.

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# GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. ROOT CO.  
\$1.00 PER YEAR MEDINA, OHIO.

VOL. XXX.

JUNE 15, 1902.

No. 12



WHITE CLOVER bloomed earlier, I think, than I ever knew it to bloom before. I saw a few blossoms fully out May 20.

BEE JOURNALS are so thick nowadays in Texas that they can't keep track of one another. The *Lone Star Apiarist* is not so lone as it was.

THE WHOLESOME HONEY.—*Little Gretchen to the grocer*.—"A tumbler of honey, please, for the cough." "Is it for yourself, my child?" "The honey? Certainly. Grandma has the cough."—*Bienen-Vater*.

PHACELIA is a honey-plant much exploited in European journals. As it was obtained from this country it seems a little strange that so little is said about it here. How much is it worth? Does it flourish in the North?

C. DAVENPORT, in his closing paragraph, p. 462, gives a plan that prevented swarming, but the bees built much drone comb. Would not the plan work just as well with full sheets of foundation below? [I do not know.—Ed.]

GLAD TO SEE G. M. Doolittle, p. 457, so emphatic that good queens can not be reared in spring before colonies are strong in young bees. Beginners are likely to split on that rock. [Doolittle is orthodox, from our point of view.—Ed.]

"A BREEDER," in the *National Bee-keeper*, shortens the time of the development of the queen beyond any thing I have previously seen. He says the larva is fed four days, and from the laying of the egg to the emerging of the queen is fourteen days.

I READ ALOUD what Bro. McGlade says, p. 481, about the home where there is scarcely a meal when the husband does not criticise something. My wife said, "Oh dear! that would break me up, wouldn't it?" I don't know, for every thing is always so good I've no chance to criticise.

MY GOOD FRIEND Adrian Getaz corrects a stupid blunder of mine on p. 411. Instead of saying there were 53 queens in one swarm, I should have said that M. Bourgeois with one caged virgin queen forced 53 colonies to swarm by introducing that caged queen in the colonies, one after another.

DISCUSSING the question of the purity of Italian queens, G. M. Doolittle said in *Amer. Bee Journal*, 1871, p. 10, "I am for calling them pure." I suspect he was nearer the truth then than when he now says there are no pure Italians. [The word "pure" is a relative term. When applied to any stock it means only a certain standard.—Ed.]

SEEING copied in the latest *British Bee Journal* Bro. Doolittle's article on p. 277, reminds me that he has not yet answered the question that I asked seven years ago, and repeated in *GLEANINGS* for April 15. Bro. Doolittle, please say why it is erroneous to call a prime swarm a first swarm, or at least absolve me from the charge of failing to comprehend the meaning of the word "prime."

I'M SURPRISED at what is said at p. 462. Years ago G. W. Demaree—I think he was the man—gave as a sure prevention of swarming to put all brood in upper story, leaving queen under excluder without brood; and this is the first time I remember seeing any one say the plan was not a success. If it is common for the plan to fail, why has no one said so in all these years? [I did not know that there was any plan that was a sure preventive of swarming. Now, really, are you joking at the statement of Demaree or not? Please label some of your jokes so some of us thick-heads will know.—Ed.]

SELF-SMOKER "Vulcan," described in *Ill. Monatsblaetter*, is the latest novelty in the smoker line. The lower and larger part contains a clock-work that runs 20 minutes with one winding-up, and drives a windmill that sends a blast of air through the smoker. A lever controls the action to make it run slower, or to stop it altogether. [Say! I am interested. Now, doctor, if you know

where this smoker can be obtained, have two of them sent to The A. I. Root Co. at once, at our expense. One of them we will forward to you, and the other we will test ourselves. While from my present standpoint an automatic or mechanical smoker of this kind is not really demanded or needed, yet I am anxious to test the idea.—Ed.]

I ENDORSE what G. M. Doolittle says, p. 588, about replacing queens every two years. If a queen is bad, replace her any time, even if less than a year old, but don't replace an old queen simply *because* she is old. I have a queen five years old that is to-day doing just about as good work as any other queen I have. A sufficient reason against replacing all two-year-old queens, if there was no other, is that you can hardly decide the character of a queen until she is two years old; and if she has a good record when two years old, every year of good record after that increases her value as a queen to breed from.

DOOLITTLE'S "QUEEN-REARING" (authorized translation) has been published in German, edited by A. Strauli. Those Germans know a good thing when they see it. [It is my own private opinion that Doolittle's queen-rearing has done more to put the rearing of queens on an advanced basis than any other book or plan hitherto put out. We all owe Doolittle a vote of thanks for putting so much emphasis on good queens, and using nature's ways to secure that vigor of stock that can not be obtained in any other way. While I am satisfied there will be some substantial improvements made on the Doolittle plan, yet he has done the bee-keeping world a good turn by starting the ball rolling in the right direction.—Ed.]

MY BROTHER-IN-LAW has just returned from spending the winter in Phoenix, Arizona. He went to a grocery and asked for extracted alfalfa honey. "Extracted honey? what's that?" After a little explanation the grocer said, "Oh! you mean strained honey." Then he started to get some, but returned in a short time saying, "I can't draw it, it's froze." Mr. Stull laughed. "Oh! you needn't laugh; it always freezes when it gets cold enough, and then it must be thawed out." Mr. Stull was quite pleased with a visit to the boy bee-keeper, Mr. Chambers, of whom he formed a very favorable opinion. [It seems strange that, in a locality that probably has as many bees to the square mile as any place in the world, a retailer of honey can be found who does not know what extracted honey is, and who should then be so ignorant as to say that honey "freezes." I am satisfied that this retailer was not very well acquainted with our boy friend Mr. Chambers.—Ed.]

A GOOD THING is the plan Doolittle offers, p. 457, to graft cells in a colony with a queen that the bees are trying to supersede. As beginners are not likely to have many such queens, but are likely to have plenty

of colonies preparing for swarming, why not graft swarming-cells? They could be cut out two or three days before time for the queens to emerge, and quite a batch might be secured. [The best time in the world for the honey-producer to rear queens, and a very choice lot of them too, is during the swarming season. He can well afford to take the time to graft some of his swarming-cells with larvæ or eggs from a choice breeder; then when those cells are capped, cut them out and put them in nuclei. This is a very simple and easy way to raise queens, and is, in fact, if I mistake not, the one practiced by some of our most successful honey-producers who have become convinced that such queens are remarkably strong and vigorous. The next best colony, according to our experience, is the one that is trying to supersede queens. Indeed, we consider such a colony a prize, and set it apart and keep it breeding and filling out cells.—Ed.]



Now Boer and Britain ground their arms  
And cease the carnage red;  
While Edward VII. mounts the throne  
The peace-dove flies o'head.



Many reports from various sources have shown lately that the replacing of queens every year or every two years is not best nor even desirable, some queens improving up to four years of age, and some doing well at five. This, however, does not apply to W. Z. Hutchinson's reasons for his early replacing of queens.



#### AMERICAN BEE JOURNAL.

Concerning the tenacity with which the British press maintains that cane sugar has a higher sweetening value than sugar from beets, Mr. E. E. Hasty ventures to make the following suggestion, which has, by the way, been lingering in the mind of more than one person:

Sad to relate, governments sometimes go into systematic lying for a purpose. Without sufficient evidence I rather "smell" that the cane-sugar versus beet-sugar question is kept from being settled mainly by the British Colonial Office, and that they engaged in that sort of thing for the benefit of British colonies which produce cane sugar. But certainly there may be one real difference. The two kinds of sugar quite likely go through different processes in contact with different chemicals. If so, they can be exactly alike only in the improbable case of getting all the chemicals out of the finished sugar. But does this amount to a practical distinction, or is it infinitesimal and non-practical?

It seems to be granted by all that there is a wide divergence between unrefined cane sugar and unrefined beet sugar; but after refining, the difference between the two sugars has not yet been detected. The British are great on raising cane.



The beneficent operation of a general government is nowhere more apparent than in the establishing of experiment farms in various portions of the country. At these places the different kinds of seeds are tested very carefully under the most favorable conditions of soil and climate, so that the individual producer may know just what to do without making many costly experiments and provoking failures himself. All know to what a wonderful degree of excellence the wealthy class of England have brought the sheep, the cow, and the horse, by a line of experiments through many years at their own expense, thus greatly blessing every nation on the earth, especially this. On the first page of Mr. York's journal for June 5 is shown the apiary at the Central Experimental Farm, Ottawa, Canada. Some of the hives are on scales to show the daily gain in honey. About 50 colonies is the average capacity of this apiary.



#### REVUE INTERNATIONALE.

"Practical Treatise on the Rearing of Queens" is the title of a new book written by Giraud-Pabou and sons. In speaking of it Mr. Crepieux-Jamin says:

Mr. Pabou and his sons are not unknown to the world. For a long time their apicultural establishment has been reckoned as among the first in France; but they have just shown themselves in a new aspect in publishing this in many respects remarkable little book. Those who have any taste for this subject, or who are prompted by curiosity alone, should read it, and they will not regret it. With a simplicity and modesty that imparts full confidence the authors cite the sources from which they draw their information. It is the celebrated American bee-keeper G. M. Doolittle who has inspired them the most. It may be proper to state, however, that the transposition of bee larvae from worker-cells to empty queen-cells, by the bee-keeper himself, was originally done by Mr. Mehring, the inventor of comb foundation.

A picture of the Pabou family was given in this journal for 1901, p. 11, in an article written by C. P. Dadant. I am sorry to add the following translation, which is too often a necessary task when our friends seem to be the most needed:

As we write these lines we learn of the death of Mr. Giraud-Pabou. He departed just at the moment when all the apicultural press was rendering him homage for his brilliant achievements. We extend to his sons, Stanislaus and Stephen, co-authors of the work we have just examined, and who will continue the rearing of queens in the establishment of their late father, our sincere sympathy.

From what I have gleaned in the French journals, Mr. Pabou was a man much respected for his personal qualities.



#### AMERICAN BEE-KEEPER.

In the June issue Mr. H. H. Smyth contributes a readable article on bee-keeping in the Sandwich Islands. He says:

Last year I took over two tons from 36 hives. Now I have 88, and swarming is not over yet. I expect to increase to 100 this year. The trouble here is our inability to get supplies. There is no agent here for Falconer or Root, and only one man in Honolulu who imports, and he just keeps frames and extractors, and charges enormous prices. I think if one of the large firms would have an agency here it would pay well, as the Japs are progressive; and if they see it is money in pocket they will buy.



#### CLIPPING QUEENS' WINGS.

"Good morning, Doolittle. Last year I vowed that I would never allow my queens to have their wings during another swarming season, for I lost nearly one-fourth of my swarms by their running away, and others went so high to alight or cluster that it was almost more than they were worth to climb for them; therefore I came over this morning to have a little talk with you, hoping that you would tell me how to proceed in this matter. When is the best time to clip the queens?"

"I do not blame you, Jones, for deciding to clip all queens; for doing this simplifies the work in the apiary very much, as well as to save swarms which would otherwise go to the woods, and also the apiarist from endangering his life by climbing high trees for swarms. But before we go further, you know that it will not answer to clip the wings of queens which have not commenced to lay."

"Well, I had not thought of that. I had calculated to clip every queen I found. Don't you do this way?"

"At this time of the year you would not be very likely to find many (if any) queens which were not laying; still, you might; and the rule always is, not to clip any queen unless you are sure she is a layer. The clipping of the wings of unfertile queens ruins them for life, as it incapacitates them from flying out to meet the drones; consequently, queens clipped before they are fertile always prove to be drone-layers, or never lay at all. Such queens are worse than nothing, as they are hard to find, and are in the way of our introducing good queens to the colonies having such."

"I see that point. Now about when to clip."

"When fruit-trees and dandelions are in bloom is the best time that I know of to clip the wings of queens, as at that time of the year there are not nearly so many bees in the way, this making it easier to find the queen, and when it has also become warm enough so that there is little danger of chilling the brood if the combs are out of the hive some time, as is often the case, especially with the beginner, in finding the queen in a hybrid or black colony of bees. Also, at this time, the bees are usually procuring enough nectar and pollen so they are not inclined to try to rob the combs of honey while we are looking for the queen."

"Does it make any difference as to time of day for doing this?"

"Not so far as the bees and queens are concerned; but if done between the hours of nine in the morning and three in the afternoon there will be fewer bees in the hive, so the queen is found easier, and the strong

light at this time of the day enables us to see the queen more readily, and also enables us to see to do the work better. But having once decided to clip all queens, the time to do this is at any time when we see any queen not clipped which we are sure is a laying one. Thus I am always prepared to clip any queen I may find which is laying, and has whole wings; and, besides this, I go over the apiary during fruit-bloom to make sure that *all* are clipped in advance of the swarming season. Another thing very favorable at this time is that the queen is apt to be laying up to her greatest capacity, which makes her more slow of motion, and hinders her from hiding quickly, as they often do, I find, at other times of the year."

"Can you tell me in brief how you find a queen?"

"I have several boxes built out of  $\frac{1}{4}$ -inch lumber (each having bottoms so they can be set down anywhere), the same size inside as the hive I am using, as they are very handy for many purposes about the beeyard. This thin lumber makes them very light to handle. One of these is set down by the hive; and in taking out the frames from the hive, each is carefully looked over, when, if the queen is not found, it is set in this box. Take out the first frame on the side of the hive next to you, and, when looked over, set it in the further side of the box. As soon as you lift the second frame you will have room enough to glance down into the hive, looking on the face side of the next comb, when, should the queen be there, she is readily seen as she prepares to go around the comb to the dark side. If you do not see her immediately, turn the comb in your hand so as to look on the opposite side of it, or the side which was the dark side when it was in the hive, for a queen does not stay on the side of the comb where the light strikes for any length of time. Not having found her, set this second comb next the other in the box, when the next frame is taken in the same way, looking at the face side of the comb in the hive first every time, and next looking at the far side of the comb you are holding in your hands. Keep on in this way, and you will very likely find the queen before you go half through the hive. If you go clear through the hive without having found her, you will begin to set the frames back again. If you see that you put them in the box as I have told, you will note that, as you take each one from the box to set it back in the hive, you have the same chance of seeing the queen, and in the same way that you did when taking the combs from the hive. And you always want to sit or stand with your back to the sun, as much as possible, at all times when hunting for a queen, as you can see so much better. In doing as above I do not fail once in fifty times in finding the queen, and will find her thirty-nine times out of forty while setting the combs out of the hive into the box."

"I think I understand this part now; and

next, if you will tell me how you clip, I will not bother you longer."

"Having found the queen I steady the frame by placing one corner on my right knee, or on some part of the hive, while I hold the opposite corner by the top-bar with my right hand, when I take a firm hold of the wings of the queen with the thumb and fore finger of the left hand, when the frame is lifted, allowing the corner which rested on the knee to go down into the hive till the top-bar rests on top of the hive, when the frame is lowered till the bottom-bar rests on the top of the opposite side of the hive. I now lean the top-bar over till the opposite corner of the bottom-bar strikes the side of the hive, and, if I have calculated the distance rightly, the frame will lie so that the flat surface of the comb (brood and bees) will be little less than level. Before going to the work of clipping queens I whet the small blade to my pocket-knife as sharp as possible, and, before opening the hive, place this open sharpened knife where it will be handy to pick up just when I wish it. Having the queen and frame as above, I place the sharp blade on the wing, wings, or the amount I wish to cut off; lower both hands to within an inch or so of the flat surface of the comb, when I draw the knife a little till the queen falls down among the bees, and the job is done. No danger of cutting yourself if you stop drawing the knife as soon as the queen falls. In this way I have not touched the queen, so there is no foreign scent on her; and nine out of ten queens so clipped go about on the comb and among the bees with no more appearance of being disturbed than they had before being caught."

"That looks quite simple, but I fear it will be quite trying to me before I get used to it."

"Possibly your hands may shake some; but if you will begin on some old poor queen which you care little for, your confidence will be greater, and you will be less likely to get excited."

"Do not some use scissors in clipping?"

"Yes, and good work can be done with scissors. The main difficulty here is, that you must make a specialty of having the scissors with you, while the pocket-knife goes with you wherever you go; and because of this latter fact you are always ready to clip any queen at any time when you may chance to find a laying one which has wings. To clip with scissors, catch the queen with the right hand; lower her till she takes hold of the long finger of the left hand, at the end, with her feet. Now bring up the thumb and fore finger so as to take her gently by the thorax, when she can be held in any position you like so that you can take your time and cut off just the portion of any part of the wings you desire. Cutting off a certain portion of each wing each year, so as to mark the age of the queen, as some do, as well as to clip, is the better way, as you can take all the time you wish, and be as particular as you like."





### TROPICAL COMPETITION.

**Not to be Feared in America; why West Indian  
Honey will Go to Europe instead of the United  
States; the American Tariff on Honey  
Amonnts to Nothing; Competition  
from South America; Interest-  
ing and Valuable Information.**

BY W. K. MORRISON.

Considerable apprehension has been felt (or, rather, is felt) by some bee-keepers that the tropical countries now looming up as honey-producers will crowd the Northern bee-keepers too closely. As one who has taken a part in the work of exploiting the modern system of bee-keeping in the tropics, a word or two from me may not be amiss. Cuba bulks largely in the mind's eye of some Northern bee-men just now. They forget that the land is comparatively small. Texas is ten times as big, and a good deal of Cuba will be rendered unfit for bee-keeping by the advance of the sugar industry. But even if it produces all the honey that its most sanguine admirers think it will, it is certain very little of it will be consumed in the United States. Honey sells for more money in Europe than it does in America, hence for a long time Cuban honey will gravitate toward Europe as is the case at present.

I do not think the present tariff of a cent or so a pound on honey sent to the United States avails very much. It only tends to discourage trade. If honey were on the free list the dealers in New York would buy the whole Cuban and West Indian crop and *re-export it to Europe*. The American bee-keepers would lose nothing by the operation; on the contrary, a market would be created which, in times of plenty, would be a valuable asset to the United States.

Adulteration and the comb-honey lie do far more to depress the price of honey than all outside competitors combined. I know it is a tremendous undertaking to fight these enemies; but if the bee-keepers and their farmer friends were to unite to fight, it seems certain the price of honey would soon go up several cents a pound.

At present Jamaican honey gravitates toward England, and more of it would go there if more attention were paid to quality. Here is where the tropical bee-master comes to grief. Even as I write, Jamaican honey (best quality) is selling in England at 5 to 6 dollars per 100 lbs., while best California is bringing \$10 for the same quantity. And I may add, without offense, that California depends very largely on foreign markets; and if Great Britain were to adopt a protective tariff the former would be hard hit. Hence it is that, so long as honey is

cheaper in New York or San Francisco than it is in Europe, a tariff for protection is practically useless. If the United States government were to devote its attention to putting adulterators in jail I think it would do the bee-keepers more good than any thing that within reason can be suggested.

If your readers could only see the countries they have to compete with they would lose their fears. Even in the British West Indies, where English is spoken, the people are woefully behind in utilizing the resources of our modern civilization. They are far in the rear in nearly all that pertains to scientific agriculture. Here and there, like an oasis in the desert, the traveler meets a man who understands the principles of modern agriculture and then he does not understand the practice. But the great mass of the people are only a little removed from savagery. Such people are not likely to be serious competitors in anything whatever, and, least of all, bee-keeping. Attempts made to lead them in the right way meet with but little success, for, like all ignorant people, they think they are well informed. Even the white man who is native born is dragged down by the terrible incubus of his environment, and is much inclined to descend in the intellectual scale. In the case of San Domingo and Haiti, civilization is dead; and, so far as my opinion is worth any thing, Cuba will share the same fate unless the United States lends it a helping hand.

Usually the sugar-men are antagonistic to bee-keeping, and in some countries, notably Barbadoes, Trinidad, and British Guiana, this influence is strong. Somehow or other the sugar-producers think they are the salt of the tropics; and it may be said that sugar-cane cultivation is about the only culture that is done reasonably well. This is due to the fact that crude ignorant labor is nearly all that is required in this business. The chemists and managers are Europeans, and they furnish the "brains." It is different with other cultures, where a high kind of intelligence is required. Take orange-growing for example. The West Indies are beautifully adapted to it; but, in spite of this, buyers are disgusted with their attempts to create a trade. Bananas are at home around the Caribbean Sea, and every black man thinks he knows all about banana-growing; but the United Fruit Co., which controls this business, can tell quite a different story. And bee-keeping is much more difficult than banana-growing. If the tropical bee-keepers had some one to lead them in the right way, and keep them there, great things might be done; and if the tropics were inhabited by people similar to those of Europe and North America, they would swamp the world with honey and wax; in fact, there is no limit to the possibilities of the honey business in these latitudes; *but they will never do it in our day or generation*. All over the West Indies and South America, bee-keeping has started; but it will be evident to experienced

bee-men that the task of creating a bee-industry in the tropics calls for a large amount of knowledge and practical experience; but in the tropics as well as elsewhere we have a large number of persons who, with only a few months' experience, set themselves up as first-class apiarists, and proceed to invent a new hive and prepare to furnish fine queens by the hundreds. I know the veterans will smile at this—it's the old, old story in bee-keeping.

I used to think that it was only the Yankee beginner who invented hives; but, unfortunately, I was much mistaken. Some amusing instances could be related in this connection; but, like Kipling, "that's another story." Then there are the people who know "all about it." They seem to flourish here as well as elsewhere. If we put all these factors together, and add to them the fact that tropical bee-keeping calls for a totally different system of management from that in vogue in the North, where nearly all bee literature is made, it follows that, not for a long time, will tropical bee-keeping be a disturbing influence in the market. It is different when we come to extra-tropical countries like Chili and Argentina. Admirably adapted to bee-keeping, and inhabited by people similar to North Americans, it follows that they are dangerous antagonists—more especially as large areas of both are in alfalfa, and more annually planted, it follows that they are ideal places for practical bee-masters. Sooner or later we shall hear from both, and probably Brazil. What makes them dangerous is their habit of trying for the best, particularly the best men. This is a feature not much thought of in the tropical regions, particularly around the Caribbean Sea, where merit is not much appreciated. Cheap labor is the main reliance, and, like all things else, cheap labor is bad labor.

Some one will suggest that Americans will come into these regions and establish huge apiaries, thereby flooding the market. In my opinion there are very few Americans who would care to live in the tropics, no matter how enticing the apicultural prospects. To leave good social, church, educational, and other advantages for practically none at all, is repugnant to a feeling man, and the average American lays a great deal of stress on these things. If not, his wife does.

It would be far better, I imagine, for the bee-man in search of a location and a milder climate to try the South, more particularly the Gulf States, even if he had to grow alfalfa; and it is my decided opinion that alfalfa will pay in the South as well as or even better than it does in the West.

At any rate, there are very few inhabitants of the United States who would care to live in the tropics, for this reason. The rise of tropical bee-keeping will be slow; mostly depending on the European element, who are not numerous in any case, and likely to decrease. The same problem is before them that disturbs South Carolina

and Mississippi, and many prefer to emigrate than try to solve it.

[This is a valuable article, and should be read by at least those who fear the possible effect of Cuban honey on the American markets.

What Mr. Morrison says respecting the effect of the comb-honey lies and adulteration, and how they affect prices, is true, very true. If we would spend more of our thought on legislating adulteration out of existence, instead of worrying about Cuban competition, we would accomplish more in the end. It looks surely as if American enterprise could start an awakening in these islands as it has in Cuba.—Ed.]

## REQUEENING AND SWARMING.

BY ADRIAN GETAZ.

This is intended for the comb-honey producer and not for the queen-breeder, not even for the extracted-honey producer.

### TIME OF REQUEENING.

After years of experience I am more and more persuaded that requeening every year is the best, all things considered. At any rate, it has given me the best results, stronger colonies, fewer drones, and less swarming.

As to the time of the year, I should say after the honey-flow, for the following reasons:

1. It does not interfere with the early brood-rearing or with the nectar-gathering.

2. The apiarist has plenty of time to attend to it.

3. As the drones are generally destroyed, the apiarist can raise and use drones in a colony of his own choice, and thus get, to a certain extent, at least, the control of the drone progeny.

### BUYING QUEENS.

At the present prices of queens I would advise every honey-producer to keep more bees, give all his time to the production of honey, and buy his queens from some reliable breeder, but for one thing. That one thing is that queens are often injured in the mails. Sometimes the queens from a certain breeder will all, or about all, be all right. Those from another breeder (and in one case, at least, it is one of the leading breeders of the United States) will all, or nearly all, be more or less injured, and therefore poor layers. This shows that at some points, or on some line, the mail is more roughly handled than at others. Perhaps on some line the mail-pouches are piled up more, and the bees suffer from heat. Sometimes the queens coming from a certain direction are all right for a year or so, and then turn out bad, owing to a change in the routing or handling of the mail.

### MIXING OF BEES.

While on the subject of buying queens I wish to say that the bees of an apiary will



mix from one colony to another, or, rather, to the others, more than is generally supposed.

In my early years of bee-keeping I bought some queens of all kinds to try. Their bees got mixed throughout the apiary, and after a while I had blacks, hybrids, albinos, Italians, leather-colored, maroons (?), etc., in every hive. Often an apiarist may think that the queen he has bought is mismated when the blacks or hybrids he sees in her colony have come there from the other hives.

#### RAISING QUEENS.

When raising queens for one's personal use it is not necessary to use artificial cells. Dequeen one or more colonies, strong in young bees; furnish them with combs of eggs, and very young larvæ from your best queens, and let them make their cells. Cutting holes in the combs at the proper places will help. The queen-cells started on their own combs should be destroyed in due time if not good enough to use. If they do not start enough cells, another batch of combs may be given a few days later, and even a third or more, provided care is taken to add brood enough to keep up the number of nurse-bees. As soon as the cells are sealed they should be placed in the West cages. A queen-trap should be on all the time in case an "unknown" cell should happen to hatch and induce swarming. When a queen hatches (or, rather, emerges), go to the hive to which she is to be introduced, and remove the old queen. Five or six days later destroy all the queen-cells started. Introduce the new queen in her cage, and release her by opening the cage 24 hours later. Remove the trap so she can mate. She might have been brought in (and left in the cage, of course) when the old queen was removed, or at any time after, if more convenient.

But don't release the queen until the cells are destroyed and the brood is too old to make others—that is, in full colonies. In nuclei the case is different. After the queen is released, have a queen-trap attached to the hive. A hole should be made in the piece that supports the cones, so that the virgin queen can go back to the brood-nest in case she gets caught. I will explain why further on.

This is a precaution in case a queen-cell is overlooked. During the two following days, if the weather is fair, the queen-cells that might be there will be destroyed, or swarming will take place. If the weather is bad, the swarming may be postponed.

#### SWARMING.

In my locality, and with my method of management, only from 5 to 15 per cent of the colonies will swarm. Under such conditions, whenever a colony swarms I destroy the old queen and let it requeen with one of its cells.

In swarming time, all my hives are provided with queen-traps. All the traps have a hole permitting the queens to go back into

the brood-nest. That hole is usually closed. But when the swarm has returned, and the old queen is destroyed, I open it so when the second swarm comes out the virgin queen can go back.

Now, there are two ways open. One is, to let the young queens settle among themselves who shall be ruler. Somebody called that the Getaz method. It was severely criticised when I first published it. The objection, briefly stated, was that, so long as there is young brood in the hive, the bees are apt to start queen-cells; and as it takes a queen about 16 days to complete its growth, there would be daily swarming with virgins during that length of time, or nearly so.

But it is not so. It seldom takes the virgin queens more than four days to "settle" which one shall be queen, and destroy the remaining queen-cells.

The first day a swarm issues from a hive with a trap attached, it rarely clusters, and generally returns in fifteen minutes. The second day it will remain out longer, and often cluster. The third day it will cluster and stay out several hours, and sometimes cluster successively at two or three different places. The fourth day still worse; they may be out nearly all the day, and even remain out over the night, and come back by 9 or 10 o'clock next morning.

Now, while the swarm is out the queen-cells are not well guarded and defended by the bees. There are too few of them left. The result is, that the young queens already matured emerge, fight among themselves until only one is left, and she destroys the unhatched cells. All that will take only three or four days instead of sixteen, as claimed by the critics.

I claimed at the time, that the method was fairly good, and would answer the purpose well, when the apiarist has but little time at his disposition.

The second method is well known. Five or six days after the old queen is removed, destroy all the queen-cells but one. Well, I did do it for a few years, but soon came to the conclusion that one cell only was too uncertain. Since then I cage (in West cages) all the sealed cells and destroy the others then, and also later on. I have then the choice, and in due time release the best queen.

What is the best queen? Well, I am somewhat partial to color and size. I note especially a long, well-shaped abdomen, taking for granted that such contains the best reproducing organs. It is soon enough to release the queen when she is old enough to mate. If, during that time, other colonies show queen-cells, or actually swarm, I give them the other caged queens rather than wait till their own cells are fully developed. In doing this I aim to leave the colonies without a laying queen only the shortest possible time. In my locality the swarming occurs in May; the honey-flow does not end until the latter part of July, therefore the bees reared in May are needed to gather the last part of the flow.

## QUEEN-CAGES AND CAGED QUEENS.

I spoke of West cages. They cost too much. I use, instead, a cage made of wire cloth. The lower end can be closed simply by pressing and slightly twisting the wire cloth. The upper end is closed by a wooden stopper. The queen-cells are cut with a piece of comb attached, and of a triangular shape, a sort of tail. The cell is pushed into the cage, and the aforesaid "tail" is pressed against the wire cloth with the finger. That will hold it secure.

Queenless bees will always feed the caged queens provided they are in the cluster. If outside of the cluster they may be neglected.

## CAUTIONS.

In using queen-traps, two peculiarities must be taken into account. The first is that, very often after a queen has been some time in a trap, she succeeds in getting back to the brood-nest through the cones. The apiarist can not, therefore, depend exclusively on finding a queen in the trap, to know which colonies have swarmed during his absence.

The second is that a virgin queen may starve if left over night in the trap. The escort bees always remain with a laying queen, even if out of the hive. But, according to nature, a virgin is supposed to be able to help herself from the honey-cells, and therefore the bees will not care particularly for her. In day time enough bees pass through the trap to take care of her; but when the night comes, or a shower of rain, she stands the best kind of chance to be left by herself and found dead the next morning.

## FINDING THE OLD QUEEN.

I am always trying to improve my methods and ways of doing; and if you find me advocating one way of finding queens this year and another next, don't be astonished or surprised. I now proceed as follows:

Smoke a little at the entrance to keep the sentinels from getting "sassy." Then remove the cover (and super if any) and smoke over the top enough to quiet the bees, but not enough to drive the queen out of the hive and hide in the queen-trap, which should have been placed first. Smoke down the frames at the ends, not in the center, and also between the walls of the hive and the end combs; then again at the entrance, so as to drive the queen up the combs if she happens to be on the bottom of the hive. This is rather long to read, but takes but little time to do. The object is, to have the queen in the center of the brood-nest, or thereabouts. Now take out one or two combs at one end and put them in the comb-basket. Then begin at the other end and take the remainder out, putting them also in the basket. Do this as rapidly as possible, so as not to give the queen any chance to leave the combs while you are taking them out.

Very few bees will be left in the hive; and should the queen be there, she could easily be seen. But she will not be there if the

smoking and taking out of the combs have been properly done. The above applies to either laying or virgin queens.

Now, if the queen to be found is a laying queen, all you have to do is to shake the bees from the combs in front of the queen-trap, and replace the combs in the hive. Look over each comb after the bees are shaken off, and before putting it in the hive. Sometimes the queen does not fall, but remains on the comb. If not, she will be found before the trap, trying to get in. If the queen is a virgin, a different process is to be used. Before shaking the combs, cover the hive. As you shake the combs, place them back in another basket. Do not uncover the hive and return the combs until the queen is found, either on the combs or in front of the trap.

The reason for this is that a virgin queen will often take wing and come back ten or fifteen minutes later without being seen by the apiarist. In such cases she might get back into the hive unknown to him.

Knoxville, Tenn.

[If one is not going to practice modern methods of queen-rearing, and expects to rear his queens in the old-fashioned way, *after* the honey-flow, he will rear inferior queens as a rule. If this has been your practice I am not surprised that you find it advisable to requeen every season. I agree with you that purchased queens are subject to injury through the mails, and in our A B C of Bee Culture I advise every one to rear his own queens as far as possible, notwithstanding we are extensive breeders of queens for the market; and as to the method, it takes really no more time to do the work *right* than to do it wrong. Nature, under normal conditions, designs that queens should be reared either during the swarming season or during the time that the old queen is being superseded; and by your plan of using West queen-cell cages or wire-cloth cell-cages, the average honey-producer could rear nearly all his queens, and the very best of them, during the *swarming* season. As you go through the apiary select out the best of the swarming-cells. Cut these all out and put them into cell-cages; then if you requeen every two years or every year put one of these selected swarming-cells (always from some choice queen) on to the combs of the colony made queenless, fastening the cage in about the center of the cluster. So far you would be following Nature's way, and at the same time be in accordance with the teachings of modern practice. But if the queen-rearing *must* be done after the swarming season, then the colony raising new cells should be stimulated up to the swarming-pitch by feeding; but obviously the average honey-producer could not afford to go to this trouble; and I would, therefore, urge him to requeen and raise his new blood just at the very time Nature will smile on his efforts; viz., the swarming season.

You say that you requeen every year. It



may be that modern practice in the future will show that to be the best plan, all things considered. It certainly would result in a reduction of swarms, because the two and three year old queens are more inclined to swarm than those that are only one year old. A. E. Manum once said that he found it profitable, on the average, to requeen every two years; and as the years go by I find that that is getting to be more and more a practice among honey-producers. Of course, there are exceptional queens that should be preserved.

As to the matter of letting young queens fight it out, and having second swarms, I am not surprised that the practice was criticised. It might work with you, probably, but not with others. The greatest objection is that the continuous after-swarming has a tendency to demoralize the *other* bees in the apiary, even if it lasted only four days per colony. Notwithstanding you have traps, you would not always be able to determine whether some virgin did not get through the zinc and so go with the little swarm to parts unknown; or, perhaps, worse still, go into some colony where you have a valuable queen, and kill her.—Ed.]



A NEW edition, not a new revision, as I understand it, of "Advanced Bee Culture," by W. Z. Hutchinson, is out. The regular price is 50 cents, and we can now supply it from this office. This edition is tastily printed, and in the general printing and binding it is neat. Mr. Hutchinson has the true printer's taste for the artistic and beautiful.

MR. W. K. MORRISON, an employee of the British government, now located in the West Indies, in the leading article in this issue contributes some valuable facts. I believe myself that bee-keepers have been holding up before their eyes a scarecrow that never existed except in their imagination. Other writers who have been in position to know the facts, and who are not influenced by trade interests, have practically taken the same position as that given by Mr. Morrison.

#### HELP FROM SUBSCRIBERS IN GATHERING REPORTS OF HONEY PROSPECTS.

I SHALL be obliged if our subscribers from all portions of the United States will send us postal cards telling us briefly about the season. Do not write long letters, as it is almost impossible to summarize all such; but we can handle very satisfactorily *hundreds of short ones or postals*. You will confer a favor on yourself and fellow bee-keepers if you will keep us posted in regard to the honey-flow and the market. Keep

the cards flying in all the time throughout the entire season. A proper knowledge of the honey-flow and of the market is worth thousands of dollars to the bee-keepers of the country.

#### ELECTING OFFICERS FOR THE NATIONAL ASSOCIATION.

IN the *Bee-keepers' Review*, Editor W. Z. Hutchinson has this to offer on the matter of how officers for the National Association shall be elected. As the suggestions are all so good we copy the editorial entire:

The National Association of Bee-keepers has been prospering of late in a way that it has never before prospered. It has been increasing in numbers and wealth. It is to be hoped that the end is not yet; that it will go on and on, and not only increase in numbers and wealth, but do more and more for the good of bee-keepers. Naturally, as its numbers and responsibilities increase, new features come up. Methods that answered every purpose when the members were few, are now lacking in some particular. Several changes were made last year at Buffalo, or, rather, suggested there, and afterward carried at the annual election. One thing that received much discussion, but upon which no vote was taken, was that of making nominations in advance of election. Since the organization of the Association, I believe every officer has succeeded himself. So far as I know, no harm has yet resulted from such a practice. Some have said, if no harm has resulted from this course, why not allow it to go on in this same way? Of course, there is good sense in the old saying of "letting well enough alone;" but nearly all of these old saws have their counterpart; for instance, there is one that says, "In time of peace prepare for war." Because we have never seen the necessity of electing a successor to a director or general manager, that is no sign we never shall. It may become very apparent that some man is not fit for the position that he occupies, or circumstances may exhibit some other man's qualities in such a light as to show decidedly that *he* is the best possible man for a director or a manager. With our present system it would be simply impossible to vote the undesirable man out of office, and vote in the better man. We can not come out publicly and say that Mr. Blank is behind the times, or too slow, or lacking in business methods, or neglects his business, or has this or that fault. It would be too cruel, and could not be thought of for an instant; but if we were in the habit, each year, of nominating, say, two candidates for each office, there would then be an opportunity of voting this man out of office and electing his successor. When two men are nominated for the same office, it is not considered a reflection upon the one not elected, as it is simply impossible to elect them *both*. The weak point, or, at least, one of the weak points, in the management of the National Association, is that no nominations are made in advance of election. I believe that the ballot, the actual power of electing these officers, should remain right where it is—in the hands of all the members; but so long as no one knows how or for whom his neighbor will vote, each officer will simply succeed himself.

It has been suggested that nominations be made through the bee journals; but what is everybody's business is nobody's business, and it would not, or might not, be done. The most feasible plan, to my mind, that has yet been suggested, is that candidates be nominated at the annual convention. Against this plan it has been urged that a nomination by the convention would virtually be an election. If only one candidate were named, it would; but let us nominate *two* candidates. Usually there would be no objection to the nomination of the man whose office was about to expire, and then nominate another man, and let the votes at the annual election decide between the two. It is true that a large local element is usually in attendance at each annual convention; but the leaders are also always present, and the likelihood of an undesirable man being nominated is not very great. I think that this plan is at least worthy of a trial. If it does not prove desirable it can be modified or dropped. A trial of *some* plan is more desirable than to go on as we are doing with this sort of endless-chain method. This question is bound to come up at the Denver meeting, and let us discuss it in advance of the meeting. What objections do you see to this plan? Let's have them first.

## WANTED—AN ESPOSA.

OUR friend J. H. Martin (Rambler), in writing to a friend in Cuba, expressed a long-felt want. As that friend is of a sympathetic nature he sent that portion of the letter to us, saying, "It is needless to say how badly his bachelor's quarters must have looked when his friends were forced to remark to him that he needed an esposa." Well, this is what Rambler writes:

My Cuban neighbors here seem to think I need an esposa. From the way they express themselves I think an esposa is some sort of culinary utensil or a sort of washing-machine, perhaps. Any way, I will not expose my ignorance to these people by asking them about it. Of course, you know what an esposa is; and if they are plentiful in Havana I should like to know the price of an esposa. If they do not come too high I might buy one. Another thing, are they liable to get out of repair? and does it cost much to have them fixed? I always buy new if possible, and could not think of having an old worn-out second-hand esposa. Keep your eye open, and let me know when you find what you think would suit me.

Taco Taco, Cuba, May 27. J. H. MARTIN.

P. S.—Do you know if the Roots handle esposas? If they are scarce in Havana we might fall back on the A. I. R. Co.

If any one can supply him with the necessary article in a wholesale or retail way he will confer a favor by addressing Rambler at Taco Taco. Got 'em at Rootville? Yes, we have 'em, but ours are priceless. Stenog, who reads Spanish, says an esposa means the best washing-machine in the world.

## HONEY PROSPECTS—STIFFENING OF PRICES.

REPORTS so far, covering the north middle and eastern portions of the United States, are not so encouraging. The season has been very backward, especially in Michigan, Ohio, and New York. Very warm weather has been followed by the other extreme—cold, cool, and frosts. The bees no more than get nicely started when there comes on a chilling north wind. Clover is just beginning to open up; and even if it should yield fairly well, the bees are not in the best possible condition to take care of the flow. Further reports from California show that, in spite of the rains early in the season, there will be almost an entire failure in the southern counties. Some honey will be secured along the orange belts and near the coast; but this, I am told, will probably not amount to more than ten carloads.

Later.—There have been some warm copious rains, followed by ideal honey weather, in the east-central States.

## THE REDUCTION OF THE TOMATO CROP.

THE following letter from Mr. F. J. Root, of the *American Grocer*, New York, will explain itself:

Dear Mr. Root :—I have been talking with a packer of tomatoes from down "Jerseyward," and we have also had letters from Delaware packers about the decadence of tomato-growing. To-day Mr. J. Stout was in the office, and tells me that the growth of tomatoes on given acres will not average more than from a third to a half what it formerly was. Continuing, he said that a decade ago Long Island was a great section for pickles. Now, he says, no one can grow pickle stock there, and many factories have moved up-State. Farmers, being unable to raise good crops of tomatoes—even with the same seed, same soil, same every thing

to all appearances—are raising other stuff—potatoes and truck.

Seeking a cause, this packer says it is owing to the changing season; that packing, which a few years ago might begin in August, can not commence until well into September. What think you about this matter? Do you believe that the climate has changed? Or may it not be owing to the absence of bees? As these sections have become more thickly settled, bee-keeping has become practically nil, and possibly the non fertilization of tomato-blossoms may have ensued. It is certainly hard to believe that so great climatic changes have come about. May be you might get some interesting letters about this for GLEANINGS.

New York.

F. J. ROOT.

I know little about the changing of the climate; but the removal of the bees might and probably would make some difference in the amount of the fruit that would be actually grown. If some one in the vicinity, a tomato-grower, would bring in a few colonies of bees he could very soon determine whether they would be the means of increasing the crop. One season's experiments would hardly be sufficient to prove any thing. It should cover a period of at least five years.

## A BEE-KEEPERS' BUTTON.

EVERY year the National Bee-keepers' Association has paid anywhere from \$5 to \$25 for badges to use by the members who attend the National convention. In some cases the cost of badges is paid by a local association or by two or three bee-keepers. I know that on one occasion I myself was out of pocket some \$12. President W. Z. Hutchinson proposes, in the *Review*, that the Association secure once and for all a neat and tasty button that shall be emblematic of the industry, and at the same time give the name of the Association; that when a member joins he be sent by mail one of these buttons, and that he be requested, whenever he goes to a bee convention, no matter whether National or otherwise, to wear that button so that other bee-keepers who may be in the car may be able to recognize their fellow-craftsmen.

I have traveled miles and miles close to some bee-keeper in the car, whom I had known for years by correspondence; but because I had never seen him, nor he me, we did not recognize each other, and my experience has been largely the same as Mr. Hutchinson's.

Of course, if any local society entertaining the National wishes to put a neat pretty silk badge under the button, well and good. But the suggestion of the button as a whole is a good thing, and I have no doubt it will come up before the convention for recommendation at Denver.

## THE DENVER CONVENTION.

DON'T forget the big National convention at Denver, beginning the first week of September. The very low rate of \$25 for the round trip from Chicago has been secured. A sleeping-berth for two nights and one day will cost \$6; but where two bee-keepers go together the two can occupy one berth, thus dividing the expense.

Whether there will be any low rates to



Chicago to those who are located east, I can not now say. There are quite a few bee-keepers who are planning to attend; and those who think of going, not only to study some of the peculiar conditions in the West, but to learn about our bright and hustling bee-friends in the irrigated lands, should let us know whether they intend to go, so that we can, if possible, make up a party and leave Chicago all in one day. I expect to go, and it is possible and even probable that another Root will attend. Mr. York, Dr. Miller, Geo. E. Hilton, and W. Z. Hutchinson so far have announced their intention of being present. Shall we make up a party?

If you think you can not afford to go for what you learn at the convention, perhaps you can afford the expense of learning something about the great West.

EUGENE SECOR STILL GENERAL MANAGER OF  
THE NATIONAL BEE-KEEPERS'  
ASSOCIATION.

SOME little time ago it was announced that Mr. Eugene Secor, General Manager of the National Bee-keepers' Association, had sent in his resignation, and that the Board of Directors had selected E. T. Abbott, of St. Joseph, Mo., to fill out his unexpired term. But the Board, in reviewing its work, after a great deal of writing back and forth, during which valuable time has been lost, finally discovered that Mr. Secor's resignation was never formally accepted; that the procedure was irregular and out of order by which Mr. Abbott was supposed to be elected. Some complications having arisen, it was decided by the Board not to accept Mr. Secor's resignation, and to request him to fill out the unexpired time, or till the next general election. To this, Mr. Secor has agreed. All dues and membership fees, hereafter, should be sent, as before, to Mr. Eugene Secor, Forest City, Ia., who is still the General Manager, and will continue to be such till his successor is elected and qualified.

E. R. ROOT,

*Acting Chairman of Board of Directors.*

THE EDITOR AND THAT CIGAR; TOBACCO  
AND LIFE INSURANCE.

Two or three of our correspondents have suggested that I had better take that cigar out of my mouth where I am shown in my regulation California bee-suit on page 427, up in the canyon of the mountains, as smoking does not comport with A. I. R.'s teaching. A careful scrutiny of the picture reveals to me for the first time that there is something in my mouth that looks a little like a cigarette. Whether it is a defect in the negative, or some conspicuous object in the background that happened to come in direct alignment with my mouth, I can not say. But, say: I have about as much use for cigars and cigarettes as I have for whisky and beer. I have made a pledge with my boy that, if he ever sees me

smoking a cigar or cigarette, he has my full permission to do likewise. "All right, papa; we will agree to that."

I have never used tobacco—don't care for it, and don't know why I should assume a great expense for nothing. When I was twenty-five I resolved to invest my tobacco money in life insurance; for I figured out what tobacco costs some users of it per year. Well, I have, as a net result, \$5000 of old-line life insurance all paid up, and am now on another policy of \$8500 of the same kind of insurance. In twenty years' time these policies will be worth their face value, even if I live; and they are worth that any time if I die. When I see a friend enjoying "solid comfort" out of his cigar I don't begrudge his pleasure one bit, for I get "solid comfort" out of my "tobacco money" because I know it is *not all going up into smoke*. I have many friends (and they are good men too) who use tobacco; and there are many worse things in this world than tobacco; but there are many better things.

THE POSSIBILITIES OF IRRIGATION IN THE  
GREAT WEST; A FEW INTERESTING  
FIGURES.

MR. FREDERICK HAYNES NEWELL, Chief of the Division of Hydrography of the United States Geological Survey, expert on irrigation for the eleventh and twelfth census, etc., in the New York *Independent* for May 22 contributes a very interesting article on the reclamation of the arid public lands of the United States. As irrigation has so much to do with the growing of alfalfa, I take it that this will be of great interest to our readers. Mr. Newell says it is now no longer possible for more settlers to go out on the public domain and make homes, for the reason that private enterprise has gone about as far as it can with irrigation, and all irrigated lands thus far are taken up. He says that something like *40 per cent of the entire area of the United States*, not including outside territory, or from 60,000,000 to 100,000,000 acres, requires irrigation to produce plants useful for the supply of man and animals. In the year 1890 only about three and a half million of acres were cropped by irrigation; and yet if the government will do what private enterprise can not do, there is a possibility of all this vast area being brought under irrigation, and therefore made available for farms and ranches. In 1890 there were only three and a half million acres under irrigation. How much more there might be now he does not say. But I judge there has not been a very great increase, at least since 1895; and yet if the government will take hold of the matter, and utilize the waters of the great floods and rivers that now go to waste, constructing lakes, canals, and flumes, from which private enterprise could take off small ditches, it might be possible to increase the little area now under irrigation to twenty or thirty times its present extent. Some portions of our coun-

try are getting to be greatly overcrowded in population. Lands subject to cultivation in the East are getting to be scarce; and farms are too small to compete with ranches in Kansas and Nebraska, of 250 to 500 acres; and if this vast area could be opened up, thousands and millions of people would be able to acquire homes where now they are able to eke out only a bare living. "The labor organizations, . . . manufacturing, jobbing, and transporting interests of the country appreciate," says Mr. Newell, "the overwhelming importance of this great potential home market now but sparsely inhabited. Private enterprise," he concludes, "has already gone to its full limit. State action has been confined almost wholly to attempted improvements in legislation and the control of the distribution of the water among the irrigators. National works are being urged by those who have most thoroughly studied the subject, upon the ground that the nation alone is in a position to conserve the water supply, since it controls the land and the sources of most of the important streams." There can be no question about this. The only trouble now is that a few partisans in the East imagine that the opening-up of these arid lands by irrigation will ruin the farming interests on this side of the Mississippi. There could be no greater mistake. "They do not appreciate," says Mr. Newell, "the fact that wheat, corn, and other staple products of the East, are not raised by irrigation, save for the most limited local consumption, and never will be, because the cost of cultivation under irrigation is such that only the higher-priced products can be raised. The citrus fruits and the green and dried fruits of the arid regions differ from those of the humid region, and have in no respect reduced the price or limited the product of peaches, apples, or any other fruit of the East."

I hope our subscribers will write to their Representatives in Congress, urging them in the interests of humanity to support any measure looking toward the development of the arid lands of the great West, and thus scatter our population where all will have a more equal chance in life.

#### A FEW PLAIN FACTS ABOUT GLUCOSE, BY A CHEMIST.

In the *American Bee Journal* there have appeared two articles by Prof. E. N. Eaton on the subject of honey and beeswax, considered by the Illinois Food Commission. Regarding glucose he writes:

Glucose is produced by the action of dilute sulphuric, oxalic, or hydrochloric acid upon starch, in an open or closed vessel, with or without pressure. The conditions of manufacture govern the quality of the syrup. If the boiling be conducted in an open vessel, only a part of the starch will be converted into dextrose, the remaining portion forming dextrin. This forms the so-called glucose syrup of trade. If the boiling is conducted in a closed vessel under pressure, almost all the starch is converted into dextrose. This product, after treatment and evaporation in vacuo, forms the article of commerce known as grape sugar. The liquid product is alone used as an adulterant of honey.

In Germany, potatoes furnish the starch for the manufacture of glucose, but in the United States corn alone is used.

After the starch is converted into "glucose," the acid is destroyed. In case sulphuric or oxalic acid is used, lime is added, forming calcium sulphate (gypsum) or calcium oxalate, and these products being insolvent in the syrup may be separated by filtration. In this country, of late years, hydrochloric acid is generally used in manufacturing glucose, the acid being destroyed by soda-lye, which forms sodium chloride, or common salt, which, while it can not be removed on account of its solubility, is perfectly harmless, and is not in sufficient quantity to affect the taste of the syrup. Hydrochloric acid is also superior to sulphuric acid, as it is less likely to be contaminated with arsenic. The recent wholesale poisoning in England was attributed to arsenic in glucose used in the manufacture of beer. In the manufacture of glucose, English manufacturers use sulphuric acid produced from pyrites, the original source of the arsenic.

Several grades of glucose are marketed, graded by degree of concentration and color. Confectioners' glucose is the best, and almost white in color.

Recently a grape sugar has been placed upon the market consisting of almost pure dextrose, white in color. The product in a granulated form is being somewhat extensively used as a substitute for cane sugar in baking and to mix (I am not aware of its being done fraudulently) with cane sugar. It is a possible adulterant of honey.

Glucose is only one-half as sweet as cane sugar, possesses a characteristic metallic taste, and is miscible in all proportions in water and solutions of other sugars. It does not readily crystallize. It tractably acquires the flavor of the substance with which it is mixed. Its cheapness and general properties make it an excellent adulterant for other sugars. Probably nine-tenths of all adulteration in honey and syrups consists of glucose.

Glucose occurs in nature in combination with other sugars in many fruits and vegetables. An investigation performed at the instance of the United States Department of Internal Revenue resulted in finding glucose as made in this country not in the least detrimental to health; in brief, a proper food.

It may be mentioned that the glucose of to-day is superior to the product investigated by this Commission. Some grades of glucose, especially that intended for Southern trade, are decolorized and preserved by sodium sulphite, a substance not improving the healthfulness of any food into which it enters.

The amount of violent active poisons, sulphuric and hydrochloric acid, lime, arsenic, and other awful drugs that are used in the manufacture of glucose, is such that no consumer, if he knew how it is made or what he is eating, would even taste it. Chemically speaking, a wholly refined glucose is not unwholesome; but the ordinary article, such as is used for adulterating honey, is the very cheapest stuff the glucose-factories can put out. The acid used in its manufacture appears to be not entirely neutralized, or it is over-neutralized by the use of strychnine. If it were not for the beer business and the general adulteration business throughout the world there would be no trade or traffic in glucose; and regarding the manufacture of beer I note that Prof. Eaton refers to the recent "wholesale poisoning in England" "attributed to arsenic in glucose used in the manufacture of beer;" and a large part of the American beer, as I happen to know (not the hop beer) is a decoction of rank poisons. Any one who can eat some of these so-called decoctions of honey, almost entirely of glucose, must have a stomach of brass or iron.

But there is another point that is quite interesting, for Prof. Eaton says, "Glucose is only half as sweet as cane sugar. It possesses a characteristic metallic taste,



and is miscible in all proportions in water and solutions of other sugars."

As I have often said, one who desires to get a certain amount of sweet can afford to pay a good price, and really get the same quantity of sweet for less money than by paying a low price and yet paying dear for what he does get. Years ago, A. I. Root determined that grape sugar, a wholesome article which he used to feed bees for brood-rearing, even at the very low price it then brought, was more expensive for its sweetening power than ordinary cane sugar. I suppose it is true that honey has slightly less sweetening, for the money, than ordinary cane sugar; but honey contains the delicate aromas or flavors of the flowers; and, besides, it has a quality about it that renders it more easily assim-

ers in the bee business, and in every way work hand in hand. It is true, there is some disparity between their ages, but not in hearts, for Dr. Miller has a young heart, and takes care that the youngsters don't leave him behind in the matter of modern thought and progressive ideas.

The picture shows that the "senior twin" has advanced in years since our readers last saw his kindly face. He has already passed the threescore-and-ten mark, and is to-day, June 10, 71 years old, or *young*, as he insists on putting it. There is hardly a man in all beedom who is as prolific a writer as he. His communications appear in several of the bee journals, especially the *American Bee Journal* and our own; and he *reads* nearly all the European as well as the American bee papers.



DR. C. C. MILLER AND EDITOR G. W. YORK.

lated in the stomach. Honey, therefore, has a place in the world of sweet peculiarly its own, and always will have. It is the first sweet that civilization ever knew, and it is bound to hold its place in spite of the glucosers' decoctions and the cane sugars, which are of a comparatively recent introduction.

#### THE TWIN BROTHERS.

I HARDLY need to introduce Dr. C. C. Miller, and Editor George W. York, of the *American Bee Journal*. Some little time ago I received a photo of these twin brothers. I say *twin* brothers. They are brothers in politics, brothers in religion, broth-

As to Mr. York, I well remember when he took up the helm of the old *American Bee Journal*, and how cautiously he assumed the responsibility; but the long years he spent with Mr. T. G. Newman were not for naught. The "Old Reliable" has continued to grow under his leadership until, if I mistake not, it has reached a condition of prosperity that it never knew before in its history.

GLEANINGS is never jealous of a rival; but, "allegee samee," if the rival bee-papers in the field were half as good as they are, and our journal were twice as good as it is—well, we *might* have twice the number of subscribers.

## NOTES OF TRAVEL.

**The Mountain Sages of California; where they Grow and How they Look.**

BY E. R. ROOT.

California white-sage honey has obtained a reputation that is world-wide. It has been sent from the Pacific Coast around the Horn, to England, almost by the boatload. It is sent overland across the continent to the Eastern markets to the extent, it is said, of hundreds of cars, depending on the season. The best quality of this honey is styled "water-white," and it is, in fact, lighter colored than any honey we have except willow-herb, of Michigan, and the catclaw, of Texas. But white-sage honey is not water-white, strictly speaking; but it is really lighter-colored than our basswood or white clover.

Another remarkable quality of sage is its heaviness of body, and its tendency to remain liquid. It was once thought it never candied; but a more correct statement is

that it does do so but only under the most favorable circumstances.

The only objection to the honey is that it does not have enough flavor to suit many who have been brought up on basswood and clover; and even the rich thick alfalfa that has that beautiful minty taste does not have flavor enough for some.

Although sage honey is abundant in quantity, pleasing in flavor, and heavy in body, the plants themselves that produce it are very insignificant, and quite ordinary-looking. The flowers are small, and the plants themselves of a pale green or grayish color, and weed-like in appearance. One would never suppose, by looking at any of the sages, that they would be so fruitful of nectar; but, as it often happens, the most insignificant flowers give the richest and finest honey; for, indeed, nature has so provided that what the plant lacks in display of color and in size of flower it makes up in honey in order that the bee, nature's greatest pollinator, may come in and perform its share in scattering the fertilizing dust from flower to flower.



FIG. 1.—STEMS AND BLOSSOMS OF CALIFORNIA WHITE SAGE.



Contrary to what many might expect, the bulk of white-sage honey does not necessarily come from the California white-sage plant. Indeed, if I am correct, it furnishes only a very small part of the honey bearing that name. The black and button sages that are quite different in appearance furnish the most of it.

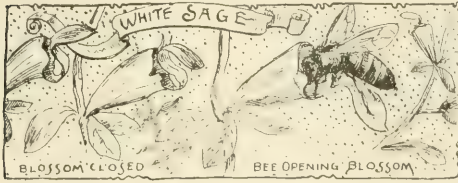


FIG. 2.

When I visited Mr. McIntyre I had great difficulty in discriminating between the black and the button sage, and I frequently confused one for the other as he pointed them out. Even now, after the engravings are made I am at a loss to say which is which. The white sage, however, differs very materially in general appearance from the black or button sage. The first mentioned runs up in large square stalks, and has beautiful little flowers that are quite attractive. I made an effort to photograph life size the white-sage blossom and stalk, and the same are shown in Fig. 1.

The peculiarity of the flower is that the bee alights on the large corolla lip so that its own weight can pull the lip down, then it can run its head down into the blossom, and with its pencil-like brush sweep the tiny drop of nectar found in the very base of the flower. The engraving that appears in the A B C book represents the manner in which the bee has to struggle to get the honey; and I reproduce it here—see Fig. 2; but this picture of the flower itself is not correct. The one I show in Fig. 1 is taken from nature, and is very nearly life size. You will observe how insignificant the foliage; and if you can imagine a pale gray or whitish green you will get some idea of its appearance. The seed-pods are shown lower down on the stalk.

In Fig. 3 I have shown a stalk of what I think is button sage. The little white flowers standing out from the buttons, you will notice, have long corolla-tubes; and it was doubted by Mr. McIntyre and myself whether the average Italian bee could reach the bottom of all these tubes. It is, therefore, very important, if we can get them, to have long-tongued bees for California as well as for the Eastern States, where red clover is grown so abundantly. But there are dozens of other insignificant plants with deep corolla-tubes throughout the United States as I discovered on my trip. But the black or button sage is perhaps the most important and prominent in all the West.

In Fig. 4 is shown a large bush of button sage, I think. The flower-clusters stand out from the "buttons;" but in the plant

shown, the blossoms have given way to seed pods, forming the clusters or "buttons." In this cut are seen patches all over the side of the mountain. But the dark spots are not sage, but probably low trees or shrubbery. The white or lighter spots are probably the button sage. The view over beyond the large plant shown in the foreground of the mountain-side may be anywhere from five to ten miles distant. The atmosphere is so clear that one has no idea how far he is looking; and a tenderfoot is all at sea that distance.

At the time I visited Mr. McIntyre the black and button sages were going out of bloom, and the white sages were coming in, although I believe they sometimes come in almost together.

In our next issue I will try to give you a view of the black sage, and at the same time tell something about an automatic reversible extractor that reverses at full speed.



FIG. 3. A STEM OF CALIFORNIA BUTTON SAGE WITH BLOSSOMS.

## *Rambles in Cuba.*



### RAMBLE 204.

Spanish Money; Foul Brood; Overstocking in Cuba; Selling Cuban Honey; Somerford as a Talker.

BY RAMBLER.

As the old adage goes, "If you touch a man in the pocket you touch him all over;" so it comes to pass, soon after landing in Cuba, there is a sort of all-overish feeling in the region of your purse. If said purse has any money in it there are three valua-

tions to it. First, it is American and standard; next, it is the Spanish centen (\$5.30); it can be bought with \$4.82 American money; and next in value is Spanish silver. A peso, or dollar, is worth 60 cts. American. It looks like a rapid way to make money to step up to a "casa de cambio (house of exchange)" and put down \$5 American and get \$7, but every thing you buy is gauged according to the money in which you pay. The \$7 will buy no more than your standard \$5. In the case of honey it is paid for in Spanish gold. A few months ago, when I arrived in Cuba, honey was worth from 34 to 37 cts. per gallon. At the present writing it is only 30 to 32 cts.; or, the beekeeper taking out his local freights, etc., is getting less than 2½ cts. per lb., American money. The dealers say that this reduction in price is all owing to the unsettled condition of the sugar market in Europe. It is to be hoped that said market will get settled. Outside of Havana, Spanish money is in general use; and, arming myself with the necessary pesos and pesetas, I



FIG. 4.—A BUSH OF CALIFORNIA BUTTON SAGE.



leisurely wheeled out to Bro. Somerford's, and, according to a prearranged plan, we were to make a descent upon Harry Howe and Harry Beaver, the noted lightning operators who live near Artemisa.

Mr. S. proposed to take me upon a long and arduous ramble this time, and he aroused me at the unseasonable hour of five o'clock. We were soon off on our wheels, and made the 25 kilometers to Artemisa in about an hour and a half. It was a December morning, and still early at 7 o'clock. When we arrived we found the Beaver still in bed, and with him another lightning operator, Fred Munson, who has charge of an apiary on the eastern coast of Cuba. Mr. Somerford roused them out in great style.

I think Mr. Howe and lady were up, for he promptly appeared and challenged me to a duel, and we fought it with snap-shot cameras. Then a little later we secured better photos, which I present. Headquarters is one of those old stone buildings—cool in the summer and comfortable in winter, with no glass in the windows. Heavy shutters close them at night.

Then there is another building that will be a curiosity to your readers. It looks like an immense haystack, but is a veritable palm tobacco-barn, and at present writing it is full of the weed, hung upon poles, and curing.

In the rear of the house I found a small apiary. I have termed it the hospital apiary, for it is the remnants of an apiary



A Queer. Harry Howe. Somerford. Harry Beaver.

that was used up with foul brood. These colonies are under treatment according to the shake-off starvation plan.

Foul brood is quite a factor to contend with in Cuba. I have heard of some heavy losses, not only in native hives, but in modern hives as well. There is no law, no inspectors; every man is a law unto himself. When Cuba gets settled into self-government there may be laws enacted; but the inspector's job is not to be envied where



HOWE'S HOSPITAL APIARY.

there are so many bees in native hives. If a law is made for inspection there should be another to compel all owners of bees to use movable-frame hives.

It is well known that the two Harrys and the one Fred came to Cuba at the instance of Mr. Coggs shall; and while the Beaver and Fred M. are managing Coggs shall's bees, Mr. Howe has taken in a Cuban for a partner.

I expected to meet Mr. Coggs shall in Cuba, but was informed that, owing to poor health, he had given up the journey, and that is where he missed it; for if he had arrived I am sure we could have sent him back to the States a well man; and while the Rambler's plans for him were of the broadest benevolence, he was thinking evil of the Rambler. Harry Beaver said (and Harry has a way of lengthening some of his words), "Say, Rambler, Mr. Coggs shall writes that if the Rambler gets into Cuba we must get a whole bagful of f-l-e-a-s and put you into the bag of f-l-e-a-s, and then get another bag of f-l-e-a-s, and so continue until you flee from Cuba."

"He wants to do me up with fleas, hey? Well, we will see about that. I am sure to disappoint him; and, pray, why should he have fleas on his mind like that? Sickly, I suppose."

"Why," replied Harry, "you have come over to Cuba to write it up as a great honey country, and we'll soon be overrun with bee-men from the States."

"Yes," said Harry Howe, "we all feel in sympathy with Coggs shall, and I have a pushing-in place for the Rambler. Whoever is pushed in never comes out."

"And," said the Beaver, "I have a pushing-off place, and a machete here to enforce the push."

Fred Munson sort o' took my part, and said, "You needn't worry, boys; for if you can keep the Rambler with Somerford any length of time, he will be used up."

And Somerford kept right along talking.

"Well, gentlemen," said I, "seeing that you have started the subject let us consider this matter of writing *up* a country. Wherein will it harm any one?"

"Here we are," said Harry Howe, "settled fairly upon our locations, and we shall seriously object to having anybody from the States crowding in here."

"Yes," said the Beaver, "and there'll be such a production of honey as to still reduce the price."

And Somerford talked.

"Gentlemen," said I, "your fears are groundless. Like many other people I have met, you are crossing bridges before you



J. E. CRANE'S COMB-HONEY BLEACHING-HOUSE.



come to them. I am not sure that many people want to come to this island; and if they do they would be intelligent enough to seek a place that is not already stocked with bees. I am sure there is plenty of room in other portions of the island, and perhaps better pasturage than you have. Then there is another fact. If this island is a great honey-producer the world will know it soon enough. The light can not be hidden."

"But you must agree," said the Beaver, "that there is a chance for overstocking the field."

"Remember, Mr. Rambler," said Bro. Howe, "that Cuba is only about as large as Pennsylvania. It won't stand much crowding."

And Somerford kept right along talking.

"Well, gentlemen," said I, "if it should come to an overcrowding point you will have to organize a board of arbitration to settle all such matters; and as to overproduction of honey, that is an impossibility."

"Impossible?" said Howe.

"Impossible?" said Beaver.

Somerford talked.

"Impossible," said I. "To prove it, let me give you some figures. We have 75,000,000 people in the United States, and only

150,000,000 lbs. of honey for them, or only 2 lbs. per capita. You must readily observe that, with proper distribution, it would take several Cubas to produce honey enough to go around."

"Well, but how are you going to distribute it?" said Beaver.

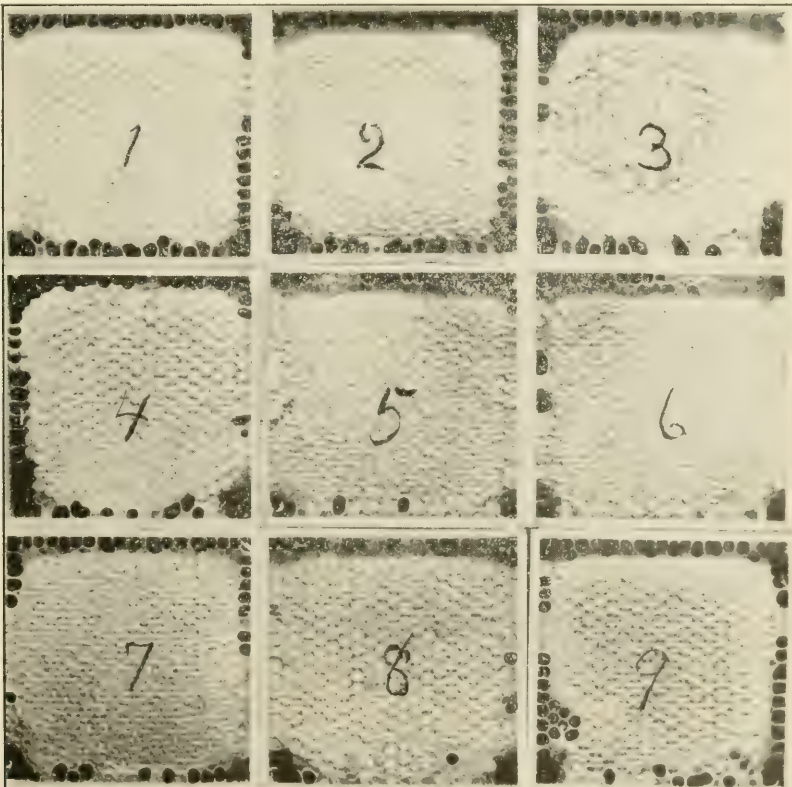
"Why," said Howe, "don't you see that is where the Rambler's great international honey company comes in to help us out?"

And Somerford kept right along talking.

"Certainly," said I; "there is a chance for the work of a honey company; but a company works for a limited number. Let me show you something better. Upon a rough estimate there are some 360,000 bee-keepers in the States and Cuba. Now suppose 100,000 of these put up \$1.00 each and become members of the National Bee-keepers' Association. I think it is agreed that we need a strong central organization as never before, and you can readily imagine what great results could be accomplished with the above sum.

"But just witness the fact," said Beaver, "that it is hard work to get even 1000 members for the Association.

"Yes," said Howe, "I sometimes think that bee-keepers are the least progressive of any of the rural workers."



BEFORE BLEACHING.

And Somerford talked.

"It does seem discouraging," said I; "any new ideas we may advance, adapted



AND SOMERFORD TALKED.

to making a new road and destroying old ruts, are promptly sat upon; and the idea of raising the membership of the Association to 100,000 will be looked upon as stupendous."

Our little convention came to a close. A rain cut short our proposed trip. I accepted an invitation from the two Harrys to go on an alligator hunt. Said hunt and its queer ending will be given in the next.

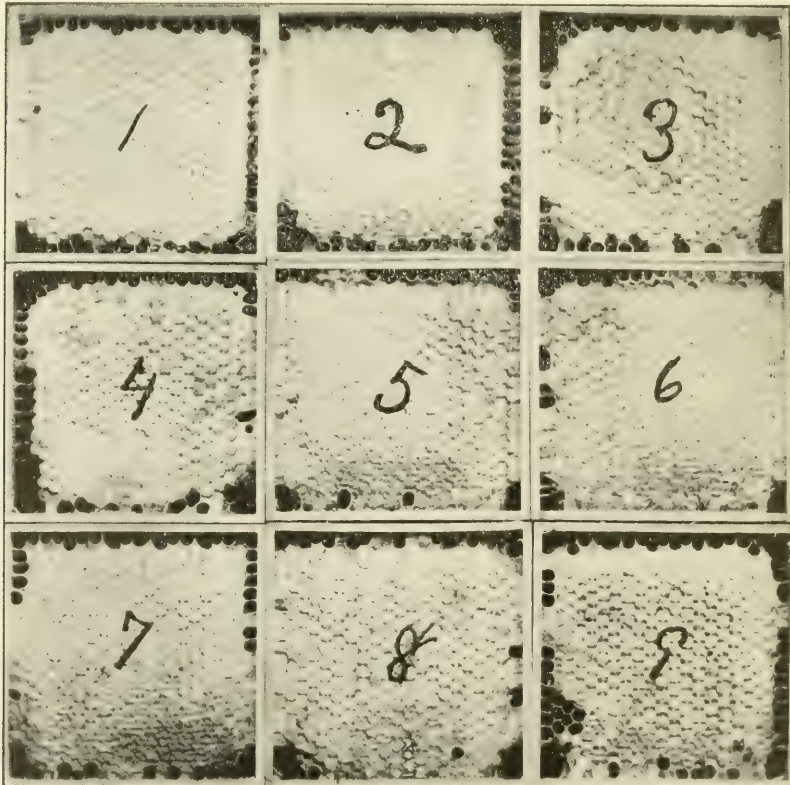
And Somerford kept right along talking.

### BLEACHING HONEY.

A Paying Investment; how a Bee-keeper Converts his No. 2 into No. 1 Honey, and his No. 1 into Fancy; a Valuable Article.

BY J. E. CRANE.

During the season of 1900 there appeared one or two articles in GLEANINGS on the subject of bleaching honey, by writers on the Pacific Coast. As the results given seemed quite reasonable, and as I had been troubled a good deal with stained combs, I decided to try it on a small scale in the autumn of the same year. Accordingly I made a light frame in front of my honey-room and covered it with sheeting, putting up shelves and selecting some 600 or 700 of my worst-stained combs. I proceeded to sulphur and bleach according to rules laid down in the articles above referred to; and after encountering some unlooked-for diffi-



AFTER BLEACHING.



culties I succeeded in so whitening the darkest end of my crop of honey that, when sent to market, it sold for the highest market price, and was, I believe, the whitest, to look at, of any honey I sent to market that year.

That I might be able to judge more accurately as to results, I had eight sections photographed, both before and after bleaching, which I send herewith all numbered.

The results as photographed do not appear as great as I had expected, as I found that the camera, that can find stars in the heavens that the eye with the aid of the most powerful telescopes can not see, had not only caught all the stain left on the face of the combs after bleaching, but more or less below the surface, as the photograph of the bleached combs does not appear nearly so white as the combs did.

No. 1 was a perfect comb without bleaching; No. 2 was stained with yellow wax, I presume from foundation. Nos. 5 and 6 were stained with propolis so thick in some places as to be readily seen by the naked eye. In others it appeared only as stain. These bleached so as to appear mostly white and very attractive. Where the propolis was thickest it was a pinkish shade.

Nos. 7 and 9 were about the worst-looking combs I had—stained, as I thought, with old dark wax brought up from the brood-chamber; and after three weeks of bleaching they still looked unattractive although somewhat improved.

I have spoken of having met with some unlooked-for difficulties in bleaching. The first was in the use of sulphur. The writers above referred to say the sulphur smoke should be cold, and they use or recommend burning it some distance from the combs, and carrying it in a pipe through the ground and then setting clamps over where it comes up. I found it, in our colder climate, very difficult to get a draft through such a pipe, and at times impossible, as the pipes would be colder than the atmosphere, when the draft would be downward and not upward, and no amount of coaxing would make it do the work or go where I wanted it to.

Another difficulty I quickly ran against was the dampness of our climate, with more or less storms, when I found my lean-to of cotton cloth was far from satisfactory. At one time there was a heavy storm of rain and wind, which, flapping the wet cloth against my honey, gave some of it quite a soaking, even upsetting one shelf with the honey on it. If such a structure were to be used, either the honey must be carried in to a warm dry room every night, and set out again in the morning, or we must expect more or less of the combs will be injured or ruined with dampness, and the extra labor would cost all the gain in the price of the bleached honey.

Notwithstanding these difficulties I was so well pleased with results I determined to put up a more substantial structure and overcome some of the difficulties referred to;

so, after my work was out of the way and my bees packed for winter, I went to work and ran a wing out from my honey-house, some  $10 \times 13$  feet, with gable roof, with mostly glass sides, as will be seen by the photo. There are six sets of shelves that extend completely around three sides, and will accommodate  $1056 \frac{1}{4} \times 4 \frac{1}{4}$  sections. I place one row of sections on top of another—or, rather, two rows of sections on each shelf, as, after some experience, one can handle two sections about as fast as one, and thus save time. I have ceiled this room overhead, with matched lumber, with a door in the ceiling at the opposite end from which I enter, with a cord attached, and extending overhead on pulleys and coming down into my honey-room. This door is for a ventilating-flue to get rid of my sulphur smoke when I fumigate or give my combs a sulphur bath. As my room is less than seven feet to the ceiling it contains about 875 cubic feet of space. As sulphur is cheap I much prefer to burn enough to fill this room full of smoke than to take the roundabout way of burning a little and forcing it up through a few clamps of honey. With the experience of the past summer I find I can burn six ounces of sulphur at a time in the room, and let it remain for twenty minutes from the time it begins to burn till I open my door overhead, and throw open my door from my honey-room to the bleaching-room, when in two minutes the smoke will so far have left that we may enter without any trouble, and in a few moments more the room will be almost entirely free of smoke.

The most satisfactory way of burning the sulphur was to place it in an old spider and set it over a two-wick Florence oil-stove. The sulphur will soon melt, and, after a little, thicken, when a match will set it on fire, and the whole burn quickly. As soon as I set it on fire I close the room, and in twenty minutes open the door and ventilator, and the job is complete. I find that sunlight will bleach faster than the light without the sun; yet the sun through glass during the summer is so hot at times it is necessary to cover the outside of the glass during hot weather with muslin or cheese-cloth, and remove it on the approach of cool autumn weather.

The effect of sulphur smoke on combs is very interesting, and well worth some study by those interested. The effect of the smoke in bleaching combs appears to be much the same as dilute sulphuric acid on wax; and as both are somewhat alike, or composed of sulphur united with oxygen and water in a little different proportions, the one diluted with the air and the other with water, we might perhaps expect that such would be the case.

The effect of sulphur smoke in turning some combs—or, rather, some of the cappings of some combs—green while it does not affect others equally exposed is very curious. Indeed, the cappings of one comb will stand, I should say, two or three, and

perhaps many times as much smoke as another. Why? I can not tell, but have observed this much: that the smoke affects those combs with the thinnest cappings first. I am inclined to think that either the sulphur or light alone would do the work of bleaching, given time enough; but it seems evident that both working together do the work more promptly and satisfactorily.

I ran some 6500 combs the past year through the bleaching process with very satisfactory results. Combs that are only a little off would come out almost as white as snow, while those a little darker would be greatly improved. A few hundred, however, had so much propolis mixed with the cappings that no amount of bleaching would make them white, as I held some of them to it for three months, and finally concluded I might as well try to change the skin of an Ethiopian. It takes more time at best than one would expect. Even those combs that are but slightly stained usually require several days to make them look bright.

¶ If I were building a room new for bleaching I would use glass overhead as well as at the sides, so that the combs would be exposed to sufficient light on both sides at the same time, and so save the work of turning and length of time to do the bleaching.

I had almost forgotten to say that, when combs have received an overdose of smoke, and any of the cappings have turned green, as may happen when sulphuring to destroy the larvæ of the wax-moth, the green can be taken off by placing in the direct rays of the sun for a time, when it will change to a light brown, or look like a thin coat of propolis, which, although not desirable, looks much better than the green.

After all would it not be much better to produce comb honey without stains? Can it be done? I believe it can; but the discussion of it will need be left till another time.

Middlebury, Vt.

[I do not know that it would be possible for our engravers and printers to show all the difference that has taken place in the combs before and after bleaching; but the photos show quite a difference.

When this idea of bleaching by means of sunlight and sulphur first came out I felt very enthusiastic about it; but after the matter was exploited in our columns about two years ago, I had almost entirely forgotten about it until Mr. Crane sent in the manuscript and photos for this article.

Our friend furnishes additional proof showing the results that may be obtained by bleaching otherwise dark combs; and while his bleaching-house cost him quite a little sum of money, I estimate that he probably paid for it in one season's use. If that be the fact, the investment has paid for itself and he has it for years to come. When one can convert a No. 1 honey into a fancy,

and a No. 2 into a No. 1, he is actually making anywhere from one to two cents per lb. on his honey. At one cent, on a basis of 10,000 lbs. he would make a clean profit of \$100. I do not know of any way that the bee-keeper can earn good money more easily after the honey-flow and the rush is over than he can to bleach up some of his off-colored combs. Mr. Crane is a very careful, conservative bee-keeper; and what he says he has accomplished I know he can do.—ED.]

#### CARELESS HANDLING OF EXPLOSIVES.

The Selection of Breeding Stock; on what Traits should the Selection be Based? A Reply to Arthur C. Miller.

BY G. M. DOOLITTLE.

My attention has been called to an article by Mr. A. C. Miller, found on page 240 of GLEANINGS for March 15, in which he thinks he has found some good material for making explosives, and proceeds to what he considers a proper combination of these materials; but he evidently handled them so carelessly that an explosion took place *in his own hands*, so it was *Arthur* who got hurt rather than the other Miller. When a man starts out on a wrong premise, it is very easy to make a comparative logical showing from the same; but as soon as it appears that the premise is false, then the "structure" falls, and all the argument counts for naught. If Mr. Miller's reading of Darwin, and about heredity, has been as careless as was his reading of my article on pages 975 and 976 of December 15th GLEANINGS, his conclusions arrived at therefrom may be as erroneous as are those in his "Explosive Comparisons" article. On page 976 I positively stated that the queen in the colony giving the "261 completed one-pound sections" was from my stock which I had been 30 years in perfecting, and as plainly told that none of the other queens were from this stock. And when A. C. Miller ignores such a plain statement, he shows that he is a very careless reader. Nearly every year I am trying queens from other parties to see if I can not find something better than what I have; and queens Nos. 2 and 4 were gotten with the hopes of improving my old stock, as the parties from whom I got them claimed to have the best in the world. But as they give only 44 and 65 completed sections respectively, as against the old stock's 261, with the same strength and working plan, it became very evident that I could gain nothing by breeding from them. Mr. Miller seems to wish to convey the impression that it is impossible to make any real improvement in bees during 30 years, and to strengthen this impression goes on record with these words: "To claim that radical changes in structure and habit in a desired direction could under these conditions be secured in 33 years is, scientifically, an absurdity." Well, I



lay no claim to the "structure" part; but I do claim that 30 years of selection has changed the "*habit*" part with my queens very much, so that to-day they are susceptible of management as regards brood-rearing, while 30 years ago they apparently did as they pleased, regardless of all management, or very nearly so. Mr. Miller also says that if we desire to increase our honey-yields "we must have improved strains of bees." Well, yes, perhaps; but that, of course, means a change in *structure*. No doubt this change in structure is desirable; but I claim to have increased my honey-yields without paying any attention to a change of structure, simply by the change of *habit*.

How about this queen-breeding, any way? S. E. Miller, to whom A. C. Miller refers, says on page 974, Dec. 15th GLEANINGS, that there are no queen-breeders, but that such persons as W. H. Laws, Henry Alley, J. P. Moore, The A. I. Root Co., Doolittle, and others who have so styled themselves in the past, are only "queen-rearers," or words to that effect. But whether breeders or rearers, how should we work? For more *active* bees? Yes. For stronger wings? Yes. For longer wings? Yes. For longer tongues? Yes. For larger honey-sacs? Yes. For longer-lived bees? Yes, and for many other structural changes where we can consistently; but, above all, and beyond all this, work for that queen whose habits can be brought to such a state of perfection that she will bring her maximum amount of brood in the combs at just the right time relative to the main honey-flow. Any and *all* of these structural points must yield the right of way to the one thing, *numbers at time of harvest*.

Suppose that, by the long line of structural breeding required, as by the articles of the two Millers, A. C. and S. E., we had succeeded, in 30 years of heredity breeding, in reaching a point where, under certain conditions, 99 of the more active, strong-winged, long-tongued, large-honey-sac bees would gather as much honey as 100 of their progenitors did; is it not easy to see that the same 30 years spent along the habit line of selection, which has produced queens which will put 150 bees on the stage of action to where their progenitors put on 100, would give nearly a half greater results than the proposed Simpson-Miller way? or, in other words, that the latter plan would give the apiarist, under the same conditions, 100 lbs. of honey to where the former would give less than 70. And breeding along this habit plan is what I have been doing during 30 years. And that I might give the readers the true results in the matter, I have gone back to the records of 1877, at which time, after six years of work on this plan, I succeeded in producing the average yield of 166½ lbs. per colony, and I find that the extremes that year were 53 lbs. surplus from the poorest and 309 from the highest, and this with a spring which was the very best I ever knew for brood-rearing

previous to the time the honey-flow came on. Twenty-four years of the same kind of selection and breeding elapse, and we come to the spring of 1901, which, in this locality, was one of the poorest springs for rapid brood-rearing I ever knew; yet the result of that season shows the average yield of 180 lbs. per colony, the two extremes being 127 lbs. from the poorest and 261 from the highest. In the above I give only the fully completed surplus. I will leave the reader, and especially Arthur C., to make his own deductions from these facts, as he says Doolittle, in spite of his years of bee-keeping, "is not successful in making correct deductions from the facts before him." Of course, as A. C. says, this failure of not making correct deductions "is not his (Doolittle's) fault, but, rather, his misfortune." I can not vouch for the matter, but it has seemed to me that, could I have had the spring for brood-rearing in 1901 that I had in 1877, the average yield could have been easily brought to 250 lbs. per colony. And these bees, from this 30 years of breeding along the habit line, do not prove successful only in my hands and under my manipulation; but I have scores and hundreds of testimonials showing that my queens and their daughters, when in the hands of others, have shown this same inclination to bring their brood on the stage of action at just the right time to give their owners a much larger yield of honey than they ever secured before.

But there is another part to this matter which I came near leaving out, which is, that, in this breeding as above given, I have also had an eye toward the habit of queens slacking their brood-rearing as soon as or soon after the harvest commenced, so that there would not be a host of larval and adult bee mouths to feed, which, according to the very nature of things, could only become consumers instead of producers. And I consider this part of the matter as scarcely second to the other.

Oh how I wish I could get bee-keepers to do more thinking along these two lines of breeding! for herein lies something within the grasp of a lifetime. Paraphrasing a sentence of one of old, were my voice thunder, I would go up and down all beedom crying, "*Breed for the queens which will give the maximum amount of brood from thirty to forty-five days before the honey harvest; and as little at all other times as is consistent with the accomplishment of this object.*" And with this ideal before all of our bee-keepers, any advance which shall be made along the structural line will be doubly enhanced.

But I notice in this article of A. C. Miller's, page 240, as in other articles of his, he tells us what *we* "must" have, what *we* "shall" do, what *we* "have got to study," etc.; instead of telling us what *he* has done and how he did it, and thereby giving us something which he has proven to be of value. In this he reminds me of the leg-end of the crow and the hens. A tree grew

near a certain barnyard, and a crow was in the habit of coming and sitting on a dead limb at its summit. Looking down one day he observed that the barnyard fowls were in the habit of putting either the right or the left foot forward, when, with a zigzag motion of both feet, they would make the litter fly in every direction, while scratching for their food. But the crow had read in scientific books that, to be successful, scratching should be done by putting both feet forward at the same time, when, with a kicking of the feet backward, both at the same time, effective work could be done, and the barnyard fowl that thought otherwise was incapable of deducting satisfactory conclusions. And this he proceeded to tell the fowl day by day from his lofty perch, but never ventured to come down and test the thing with these common fowl. Results: Baskets full of eggs for the farmer's wife, with four small crow eggs in a brush-nest up out of reach in a tall tree.

Arthur C., I extend to you a cordial invitation to come down from your high perch of what *we* must do, and "scratch" with us common bee-keepers; and we will *not* limit you to the way you must "scratch," either. If you wish to scratch according to the "latest accepted beliefs on breeding, on development, and on heredity," all right, so long as *you* only do something besides finding fault with the "scratching" we are doing. And when you have "scratched" along your line for thirty years, and have found out, by conclusive proofs and successful results, that there is more "money" in your plan than in ours, we will gratefully acknowledge the great help you have been in lifting bee-keeping up to a higher plane than it ever enjoyed before.



#### CAUSES OF BALLING AT THE ENTRANCE.

What is the cause of bees balling queens at the entrance of a hive? The hive is all right. SUBSCRIBER.

[There are several causes that might contribute to this result. First, a virgin queen from some other hive may attempt to get into the wrong hive. The sentinels will seize her, and more bees grab her, until a ball is formed. If she is not released by the bee-keeper she will, in all probability, be killed. Sometimes such a virgin succeeds in getting into the hive. If the old queen-mother is beginning to fail, the bees may take up with the young one and kill the old one. In that event they will chase their own kin and blood until she becomes frightened and tries to escape. They may grab her at the entrance, ball her, and finally kill her. But the rule is that the new comer is the one that is destroyed.]

Again, it will happen that the bees, without any apparent cause, will ball and kill their own queen. Of course, there *is* a cause, but not one that we can discover. She may be balled inside of the hive, or she may be balled out in the air near the entrance, depending on whether she attempted to escape while they were chasing her.

Still again, a newly introduced queen may be found balled at the entrance. She will emerge from her cage, and apparently every thing will be all right; but should she show a little fear, and begin to run, in all probability the bees will grab for her, and sometimes they catch and ball her just before or after she gets out.

Nine times out of ten, however, the balls at the entrance are occasioned by a virgin returning from her wedding-flight going into the wrong entrance. If the old queen-mother is to be killed, they will do the job inside of the hive, where they can do it up to the young "queen's taste."—Ed.]

#### BEEES THAT ARE GENTLE, BUT ATTACK FARM HORSES.

My bees seem possessed with an evil spirit. They are in chaff hives, and are very strong colonies. I can do as I wish in handling them. They seem to be gentle and all right in that respect. But woe be to horse or cow that they can get at. They will go 40 rods away from a hive to sting my horses. The latter have been stung so many times that, if they hear a bee hum, they are wild with fright. The first time was last September, when they stung the horses, and many times this spring. What can I do? Do you think the bees come from all the colonies or only one? I have been very careful about leaving honey about. No robbing, to my knowledge, going on. No bees are near me. I wish to plow, and my neighbor also, ten or twelve rods away from my hives; but as soon as you take a team into the lot the bees will attack them. What, in your opinion, has caused this state of affairs?

I hate to destroy them, but they are very dangerous as they are. There are nine colonies of the bees. W. W. LOVELAND.

Aurora Sta., O., May 17.

[The probabilities are that one colony of bees is causing all the trouble that you mention. If you could possibly ascertain which one it is, you would do well to move it to some other locality. There are some bees that are very easy to handle, but inclined to attack animals, especially sweaty horses. The switching of the tail and the general odor have a tendency to irritate. It is very difficult to tell from which colony the cross bees come; but when they offer an attack, get the horses out of the way as soon as possible, then you yourself get down out of sight and watch to see which way they go, and to which hive they return.]

Any bees are liable to attack horses that may be passing back and forth in their line of flight, and it might be advisable, if you



find the attacks do not come from any particular colony, to move the whole apiary; but in that case, of course, you would have to take them at least a mile and a half.—Ed.]

#### POISONED BROOD.

I send you a box of dead brood. Please give me a diagnosis of it if you can. This disease has troubled us three years. If it is pickled brood, what is the best method to get rid of it? J. H. ALLEN.

Arden, W. Va., May 11.

[The sample of brood you sent does not appear to be foul brood, pickled brood, nor black brood. It seems to us like poisoned brood. I should judge that some one had been spraying trees while in bloom, in your vicinity, with the result that the brood dies. If this is the case you would be likely to find some queens dead. Do I understand that you have been troubled with this malady continuously for three years, or only every spring for three years? This will help us determine whether it is poison or not.—Ed.]

#### OVERSTOCKING IN COLORADO.

The Arkansas Valley Bee-keepers' Association desires to say to you, and through you to your readers, that, except in a very few localities, this valley is overstocked to such an extent that any increase will sensibly augment the overstocking. In the last few years the best located have had a decrease in averages of fully a half; and further coming among us of bees from abroad is not advisable, and by us not desired. In all places not fully occupied, the natural readjustment of apiaries will very soon fill all spots. Early cutting of alfalfa is the rule, and large tracts of land are being turned to the raising of sugar beets, thus further reducing pasture. Our Association therefore desires to place the facts before your readers, and expresses the hope that some good may come from this communication.

Adopted as the unanimous expression of this Association this 3d day of May, 1902.

J. H. WASSON, Sec.

Rocky Ford, Col., May 29.

[I most cheerfully comply with the request, because I know the facts are as stated.—Ed.]

#### WHY THE COMB-HONEY CANARDS GAIN SUCH CREDENCE.

It seems that a good many people believe that comb honey is manufactured or imitated. Perhaps a reason for this belief is to be found in the wrong treatment of honey between the time it is taken from the hive and that when it reaches the consumer, mostly by keeping it in cellars or other damp or impure places. For instance, a grocer once asked me to taste his comb honey; and where do you think he was keeping it? Why, in the ice-box!

Again, last winter a family, after eating

a little of my comb honey, concluded that comb honey is good eating; and as I had none to sell they got some at their grocer's; but, oh what a difference in taste! Naturally they declared it to be imitation honey; and, when told that there was no such thing, it was simply a case of a woman convinced against her will, etc. Doubtless the grocer's had been splendid honey when taken from the hive, but had been kept in some place not suited to it; therefore perhaps it would be well for bee-keepers to label their honey something like this:

Keep this honey some place beneath the sky  
Where the air is pure and where it's also dry.

Davenport, Ia.

A. GREVE.

[A most deplorable ignorance is displayed by many of the storekeepers, and even by some bee-keepers, in this matter of keeping comb honey. Just to-day I answered an inquiry as to whether comb honey should not be stored down cellar or in cold storage to keep it away from bee-moth. There are hundreds of bee-keepers who can't afford (?) to buy a bee-book or a bee-paper who are throwing away every year the price of ten book or of all the bee journals in the world combined, just because they think they "know it all." Comb honey should be kept in a uniformly dry warm temperature, and should be sold within a year, at least, from the time it was taken from the hive.—Ed.]

#### LABELING HONEY.

I notice in GLEANINGS, page 434, a discussion on labeling comb honey. I will give a little of my experience. Last fall I had about 1100 lbs. I sold some of it at two groceries at 12½ cts., stamped like this:

I found it sold so well that I got 15 cts. for the next lot, which they sold at 18 cents.

R. S. STOUT,

BEES AND HONEY,  
Auburn, N. Y.

and the last lot I held until the holidays and received 17 cts. for it, and my dark honey retailed for 15, and at the same time the largest store in the city sold their white for 12 and 15 cents.

R. S. STOUT.

Auburn, N. Y.

#### LABELING COMB HONEY.

Referring to pages 434, 435, about labeling honey, a few words. Five years ago I had a fair crop of section honey which I sold mostly to private families; but from the start I stamped every section with my full address. Two years ago, when I had not much of a crop, I could not supply all the customers. One day a man stopped me and said, "How is it that you can't bring me any honey? Isn't my money as good as other people's?"

"Well, Billy, the truth is I haven't any more honey; but I think you can get all you want in the store. There is some nice section honey."

"No," he said; "I have tried that, but I don't want it. If it is as good as yours,

why don't those men put their names on it as you do?" AUG. BUCHHAGEN.

Steubenville, Ohio.

#### PRESERVING QUEENS OUT OF NUCLEI.

What is a safe way to maintain and preserve a laying queen when taking her away from her colony, without supplying her with nuclei? I am satisfied that queen-breeders and bee-men in general have a system by which queens are kept in contact with colonies which already have a queen, without coming in dangerous contact with the reigning queen. C. A. VINCENT.

Picton, Ont., May 6.

[I do not know of any practical way of keeping them any length of time. They can be kept in mailing-cages with a few assistants, and kept over a strong colony for two or three weeks, perhaps occasionally putting in fresh bees. They could be kept in small nuclei of the size of two or three section boxes for several months; but in that case the entrance should be covered with perforated zinc, to keep the little colony from swarming and the queen from going with them.—ED.]

#### BURLAP AND THE HILL DEVICE.

I notice in the *American Bee Journal* that the subject of burlap and the Hill device is being brought up. I think the Hill device with burlap over it has caused the death of many a colony of bees, and should like to see the advice corrected. In actual experience, I have lost a number of colonies by using burlap over the frames in winter. The chaff seemed to absorb moisture, and, to all appearances, the upper story of the hive would have the appearance of allowing the snow to drift in. Then when a warm spell came this would melt, and the chaff would become a cake of ice. I would throw away the Hill device and use a board like the Porter escape-board, reversed, leaving a double bee-space over the frames, and on this place my chaff or dry leaves. With this arrangement, strong colonies, and plenty of honey, I believe I can winter successfully in your Medina climate—yes, with hives made of quarter-inch lumber. I am often asked for advice on this important subject, and with my experience I can not recommend the Hill device and burlap packing. W. S. POWDER.

Indianapolis, Ind., May 30.

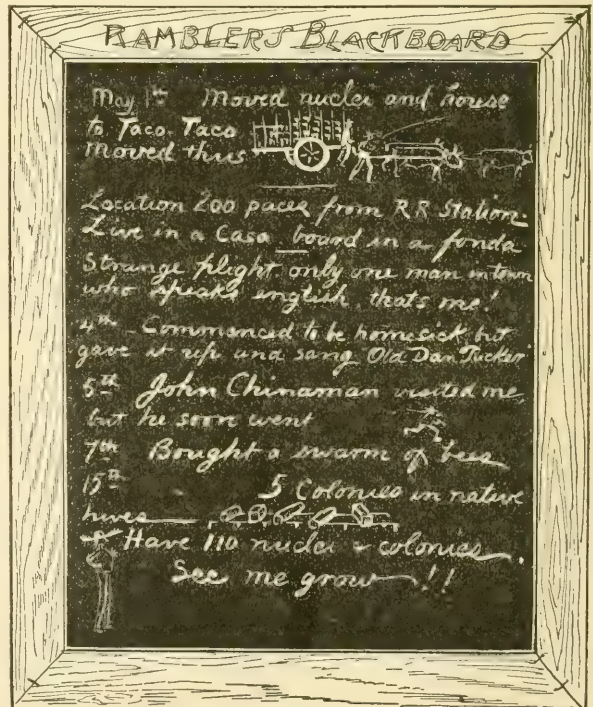
[Some years ago there was considerable discussion over this question of sealed covers versus absorbents; and the preference

in favor of one or the other seemed to be about evenly divided. In some seasons the absorbing cushions over the Hill device seemed to give better results; in others the sealed cover (a board  $\frac{1}{4}$  inch thick, with a chaff cushion on top) gave the better showing. In our own apiary we are gradually working toward the sealed cover; but a double bee-space under it, I believe, would be an advantage. But I doubt very much whether, with such a sealed cover, even such as you describe, you could winter in hives having a side thickness of only  $\frac{1}{4}$  inch. In my own experiments I found there was a very marked difference between the single-walled hive and that with two packed walls both having sealed covers with the chaff cushion on top.—ED.]

#### STILL DOING BUSINESS AT THE OLD STAND; COMBS 21 YEARS OLD.

I am reminded to write to you to-day by a bee-ting. Twenty-one years ago this spring a swarm of bees came here and went into an empty hive. The next year they made 416 lbs. of extracted honey, and "are still doing business at the old stand." The combs are 20 years old, and may be 21. I used to be "our eighteen-year-old bee-keeper" when GLEANINGS was young, but have not much time to care for bees now. L. Z. JONES.

Galva, Ill., May 12.







*H. S. W., Mich.*—It is pretty hard to estimate what the income would be from a colony of bees. It may be anywhere from nothing up to ten dollars. A fair average in a good locality would be somewhere about five dollars; but the uncertainty of the season is such in the northern part of the United States that the net earnings of a colony may not be more than fifty cents. But in Central Michigan it ought to average not less than from two to three dollars. Mr. M. H. Hunt, of Bell Branch, in your own county, a little town a short distance from Detroit, could give you more exact data, and I suggest that you call on him.

*W. L. P., Ind.*—If your combs are badly bridged the combs or frames of your hives are possibly not properly spaced. The normal distance of combs is from  $1\frac{3}{8}$  to  $1\frac{1}{2}$  from center to center. When so spaced there will be but very little bridging providing, of course, the combs are reasonably flat, without any bulged place in them. If combs are built crosswise or crooked in the frames there will be more or less of bridging in them, and in that case combs should be cut out, and the frames filled with sheets of foundation. Crooked combs might be put back after being straightened out; but a better way is to melt them up and use the foundation as suggested.

#### SOME CHARACTERISTICS OF FOUL BROOD.

*C. J. W., Cal.*—Foul brood proper has the odor of a common glue-pot; but when the disease is sufficiently advanced the larvæ will die, turning first to a yellow, then a brown, and then a very dark brown like coffee. In the last stage the larvæ will assume a mucilaginous condition; and if a toothpick be introduced in it, and drawn back a little, the diseased matter will adhere like so much stringy glue. In the early stages of the disease the form of the larva will be perfect, but it will have a slightly yellow color. In that case you will notice exactly what you describe. If you have real foul brood, about this time (if you make a further examination) you ought to find a pronounced ropy condition as well as a pronounced odor from the matter in the combs. It is evident, from what you write, that you have either foul brood or black brood. The last named is a disease that is fully as serious as foul brood. To enable you to determine which you have, it will be necessary for you, perhaps, to have a microscopic examination made. Dr. W. R. Howard, of Fort Worth, Texas, a professor in the University there, makes these examinations for \$2.00; and we therefore suggest that you send him a sample of the diseased brood, inclosing the money, when he will tell you definitely just what you have. But on the assumption that you have either

black or foul brood, we would advise you to treat the hive just as if you had foul brood; and we are, therefore, sending our pamphlet on foul brood. The method recommended will be applicable alike to either foul brood or black brood; and if you have not already taken the proper steps to eradicate the trouble you would do well to do so at once. If you do not wish to go to the expense of destroying the combs, and the combs are not very badly diseased, move all the diseased colonies to an out location, at least two or three miles from any other bees if you can. This would be a wise procedure, no matter what you do; for in treating any contagious disease among bees it is always advisable, as with the human family, to establish a quarantine, and put all affected colonies in that quarantine. You will realize the importance of washing the hands thoroughly after handling the diseased colonies. It might be advisable to put on a pair of overalls and a wamus, and remove these at the time of leaving the apiary under quarantine.



We have cleared a piece of ground right in the depth of the forest, down near the "big spring;" and in place of the rank luxuriant growth of wild flowers, ferns, and other plants that thrive in dark wet soil, we have already celery, onions, and potatoes, right beside the "babbling brook." Almost all my life I have had a fancy for a garden with a never failing stream of water running through the middle of it, and now I have it. The slope is steep enough so there is a succession of little waterfalls; and the sight of this water, hustling over its bed of white pebbles and white sand, with the growing plants close to the edge of the water, is to me a "thing of beauty" and a joy such as I can hardly describe.

About as soon as the celery had got hold of the rich dark soil, a woodchuck evidently "took in" the advantages of the spot, and "moved in," and the boys are now greatly engrossed with their attempts to get a steel trap that he can not pull out of. If daily "clipping back" is good for celery, some of ours in the middle of the patch ought to do well.

Last season I offered the boys half a dollar if they would find a growing plant of *ginseng* in our woods. This spring they found so many I had to stop offering a reward for them, and now there are half a dozen or more in or near our celery-garden.

A few days ago, while I was giving my potatoes some loving touches, right on the summit of one of the highest hills I stooped to pull a weed, and was just grabbing for another that had sprung up quickly in a potato-hill, when I stopped with a shout of

"happy surprise." It was a ginseng-plant a foot high, with buds for thirty or forty berries on it. It is right in the sun, except during a part of the afternoon, and seems during this damp rainy weather very well suited with its exposed situation.

A few days ago Mrs. Root and I went to dine with a neighbor after Sunday-school. In their home they have a stuffed specimen of a huge wildcat killed in or near our woods. Well, one day I was rushing through the dense thicket in that narrow bicycle-path that leads to the celery-garden, when there came a rushing sound, and it seemed as if three or four wild cats were right on to me. My hair stood on end, and I fairly shrieked in my fright, "Get out!" After I had backed down and collected my senses I found the rumpus was all caused by just *one* mother partridge. Even if I was frightened, I could not but admire her beauty. Her exquisitely penciled feathers were very becoming to her when they were all bristled up like a sitting hen; and she was so *determined* to get my attention she kept fluttering about me, *almost* within arm's length. I soon turned my eyes from the handsome mother to her large brood of chicken partridges; but this she was determined I should *not* do. Why, it was worth half a dollar to get such a "short range" view of the beautiful birds.

No, no, my friend; you could not induce me to swap my "cabin in the woods," with its environments, for any city home in this broad land of ours.

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SOMETHING MORE ABOUT THE "MAYWOOD COLONY,"  
THE OTHER SIDE OF THE QUESTION.

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*Mr. Root:*—My attention has been called by one of your subscribers here to your issue of May 1 (p. 391), in which you publish a very doleful letter from one of your correspondents in which he tells how he has been victimized in buying land on Maywood Colony, of his inability to make his land pay, the terrible troubles he has had to make a living, etc.

Now, Mr. Editor, as an old resident of this said Maywood Colony I protest against such statements being published by you without your doing as you advise prospective purchasers to do—that is, find out the truth of the charges made; find out if this is a fraud and a fake before scattering such harmful reports throughout the length and breadth of your subscription area. It would have been an easy matter even for you to show this party to be in the wrong; for in the very printed matter he sent you, you will find that Foster & Woodson distinctly advise no one to come here "busted," but to figure on having at least *fifteen hundred dollars* to start on. This man came here with practically nothing, and told, when he came that he had nothing, and must depend on his labor entirely to make a living and pay his expenses. He states in his letter that he sold "his nice little farm" in Massachusetts and came here. It must indeed have been a very *little* farm if the proceeds landed him here a pauper. As a matter of fact, the man must be either lazy or an utter incompetent. If he and his family were unable to obtain any more work than he states, and unable to earn but \$66.85, the chances are that the parties who paid him that amount overpaid him. There is work for every competent and industrious man we can get here, and at good wages.

Possibly I speak a little strongly in this matter, but I have been hunting for three weeks—*not* for a job but for a man who knew enough to spade a garden and dig some post-holes, and have not been able to get one. Why? Because every good man has work ahead, and I won't have the dolts.

This man bought a piece of five acres of land for which he paid \$50 per acre; and, permit me to say, he

got a good piece, for I know just what and where it is. He had no money to plant with, no money to build with, no money to buy tools with, no money to support his family on. We don't want paupers here, either religious or secular, and especially do we not want paupers who can not do a full day's work. He claims to be a gardener. If he is, he certainly need not have been out of work a day, except when it rained, if he was a good workman.

Right here I want to say that the Christian papers of which your correspondent speaks—the *Christian Herald*, *Sunday School Times*, and other papers did send their representatives here, and looked this Maywood Colony up thoroughly. As a result they wrote Foster & Woodson that their columns were always open to them for any matter they wished to publish. Bradstreet sent a man here for the same purpose; and if you will consult their reports you will find the result of their investigation. One of their men bought land here after the report went in.

Now, Mr. Editor, I will tell you what I'll do with you: It would do you lots of good to take a trip to California, especially if it did not cost you too much, and I will agree to pay your fare here and back *provided* you find Maywood Colony to be a "fake" and a "fraud" such as you and our dear brother claim it to be. It would do me good to prove to you that he has totally misstated conditions here. If you find, however, that this place is what we claim for it, you will pay your own fare, and I will leave the decision *entirely* with you.

I claim that we have a magnificent valley here, a fine climate, an abundance of pure water, and as fine a lot of orchard as in bearing as there is in the State or the United States; that we have a soil that will grow practically any thing in reason in the way of semi-tropical products, provided some *brains* are used in the work. I claim that it is as hard work here to do hard work as it is anywhere. I claim that it takes money here as elsewhere to buy land, buy trees, buy stock, and support a family, and that the man who comes here expecting to do these things without money and hard work will surely get left. I claim that we have here a good market for every thing produced, and at fair prices; but one must wear out the soles of his shoes rather than the seat of his pants to produce the stuff. I also claim that our trees are fairly breaking down under their load of fruit, and that we shall need at least 500 workers in our cannery to handle it, and 500 more more to gather it from the orchards; and I think I am safe in claiming, also, that our brother will still be unable to find work that is not "hard and disagreeable." I also claim that every picture shown in the printed matter of Foster & Woodson is a true picture of the scenes here, as I have helped to make most of them; and I will agree, moreover, to show you each particular scene, and within four miles of our depot here. There is not one idle creeper or mason on the colony, and there are not three houses in the place to rent. Come out and see us; and if you do not buy a piece of land in Maywood Colony I think that you'll want to before you leave, and that you will write an apology for publishing the letter in your May 1st issue.

On the theory that you want to be fair, I suggest that you publish this letter, or as much of it as will contradict the letter you gave. Bear in mind, we do not want paupers, cranks, incompetents, or "busted" people to come here. We want people with some money, some muscle, and some brains. If they will come with these requisites they will find here a fruitful valley for which God has done more than for nine tenths of the earth, and he expects only that man will do his small share to make of it an abiding-place that will hold him safe from want and care. Come and see us—I make my offer in good faith, feeling that I can leave the decision to you with perfect safety.

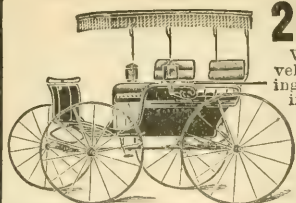
Very truly,

Corning, Cal., May 23.

C. M. WOODLAND.

We have now given a statement from both sides, and hope the matter may be dropped. I do apologize for not having given a more careful examination of the printed matter sent me, and for not noticing that such a careful periodical as the *Sunday School Times* had indorsed the colony. Some of our firm may visit the colony before very long. I am sure both of these letters will prove of value to those thinking about seeking new homes in far-away lands.





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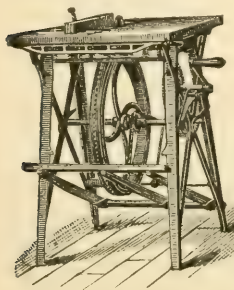
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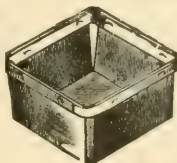
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**I. F. Miller, Knoxdale, Pa.**



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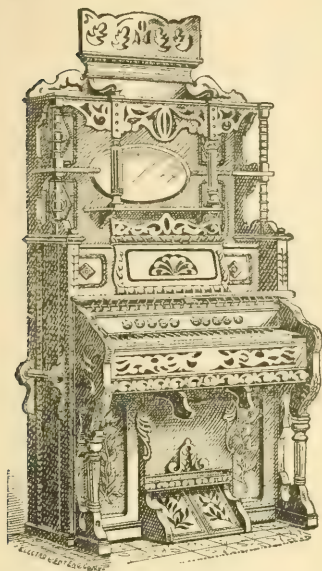
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## Moore's Strain of Italians

Prof. Frank Benton, of Washington, D. C., whose name is familiar to all progressive apiarists, says:

"I have several times, in the course of correspondence, and in conversing with bee-keepers, had occasion to answer the question: 'Where can the best Italians be got?' It is, perhaps, not an easy thing to say, with certainty, but at least I have felt I might be able to tell where GOOD ones could be obtained. A number have been referred to you, for, although I have not tested your stock personally, I thought I knew pretty well, from general reputation, its character. A bee keeper near here—Mr. Geo. A. Lanphear, of Vienna, Va.—who got some queens of you on my recommendation is so well pleased with them—in fact, gives your bees such a good recommendation to me for gentleness and working qualities, particularly their working on red clover, that I thought I would like to try some myself."

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My 23-100 breeder was awarded a \$25.00 prize by The A. I. Root Co. for producing bees showing the longest tongue-reach on record. Competition was open to the whole world.

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Pendleton County.

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Buckeye Strain of Three-banded Long-tongues are wonderful honey-gatherers. One customer bought 10 dozen. Just think of it. He bought a few last season as a trial.

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Get rid of those queens whose colonies do nothing, and get good ones. My customers think my queens are good ones. F. L. Craycraft, Havana, Cuba, has tested 300, and this season has bought 300 more. I am breeding to Golden strain of Italians. Mailed *promptly* at these prices: One choice select warranted, \$1.00; six for \$5.00. Warranted, 75c; six for \$4.00. Send for circular. **J. B. CASE, Port Orange, Florida.**

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**For Sale.** Fine, carefully reared, Italian queens, from choice honey-gathering strains. Tested queens, \$1.25; Select tested, \$2; untested queens, after June 10, 75 cts. each. Safe arrival guaranteed.

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**QUEENS AND NUCLEI.**—Untested queens, either 3 or 5 banded, 75c; 6 for \$4.25. Tested, \$1.00 and up. Nucleus, including untested queen, 2-fr., \$2.50; 3-fr., \$3.25; 4-fr., \$3.75. **CHAS. H. THIES, Steeleville, Ill.**

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I have had 18 years' experience in the production of honey, and during that time I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then, by crossing these different strains, and selecting the best, and breeding from them, I have secured a strain of stock that is the equal of any for honey-gathering. I have a queen from the stock of J. F. McIntyre that filled supers when other stocks were starving. This year I am breeding from a daughter of Root's famous \$200 queen, and from the stock of J. P. Moore. Warranted queens, in any quantity, will be sold at 55 cts. each, and satisfaction will be guaranteed in every case, or money will be refunded.

**L. H. Robey, Worthington, W. Va.**



the fatherland of Columbus, is the same of the best honey-bee. Best select long-tongued, young tested Italian Queens, \$2; extra select breeding queens (one year old, worth \$10), \$3.00; by return mail. Address with mention of *Gleanings*, **BIAGGI ANTHONY, Pedevilla, near Bellinzona, Italian Switzerland.**

## RED-CLOVER QUEENS.

See my Advertisement in *GLEANINGS* June 1st. Look it up. It will pay you big.

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**Barns** Barns of plank save timber and cash. Neatest, cheapest, strongest, most desirable. 5000 in 42 States. Tested for 20 years. Indorsed by agricultural colleges and scientific men. Book for stamp. **Shawver Brothers, Bellefontaine, Ohio.**

**FOR SALE.**—50 colonies hybrid bees in fair home-made hives; Hoffman frames; \$2.75 each; \$2.50 for ten or more. **G. L. ELLIS, Millsboro, Del.**

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we have them at Root's prices. Also A B C in Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

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### NO. 2 SECTIONS.

We are oversold on most sizes of No. 2 sections except four openings in 2 inch and 1½, which we can reduce to narrower width. We also have a surplus of 4¼x1½ plain; 3½x5x1½ plain, and Danz. 4x5x1½ plain. If you can use any of these we can ship them promptly.

### BEESEX LOWER.

Until further notice we will pay 28 cts. cash, or 30 in trade, for average wax delivered here. As we anticipated, wax has been coming our way more freely as the season advances. We have about enough on hand and on the way to finish this season's trade in foundation. Price will likely be marked still lower next month.

### BUSINESS STILL BOOMING.

We started last week running our section machinery up till midnight to increase the output of sections to keep pace with the orders. We are making some gains on the orders, and hear from some of our agents and dealers that they are nearly caught up. We still have ten days' to two weeks' work ahead of us, and orders are coming in quite freely yet. We are doing our utmost to get caught up by July 1st.

### Kind Words from our Customers.

I do not wish GLEANINGS to stop, as I can not do without it. It is, to the very last word in it, brimful of good reading. It has saved me many times its cost in the information I have always found in it.

Pentz, Pa., May 23.

J. B. HOLLOPETER.

There are two things I am feeling especially happy about. One is my new secretary made of polished oak. The other is that fountain pen you sent me. I wonder you don't get more "Kind Words" in regard to them. It is worth a "big lot" to me to escape the thralldom of the ink-bottle. Since the pen and I have got "acquainted" with each other we agree to a "dot" without any "blots" anywhere around.

Bingham, Mich., May 29.

A. I. ROOT.

### Convention Notices.

#### JOINT BEE-KEEPERS' CONVENTION.

The National Bee-keepers' Association and the Colorado State Bee-keepers' Association will hold a big joint convention in the Colorado State capitol, at Denver, on Wednesday, Thursday, and Friday, September 3, 4, and 5, 1902. There will be an exhibition of bee-products and bee-appliances, with liberal premiums. All bee-keepers are urged to prepare to make attractive exhibits. For particulars write to

FRED L. STONE, R. D., Longmont, Col.

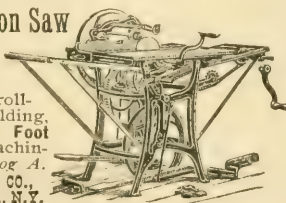
#### CENTRALVEREIN FUER BIENENZUCHT IN OESTERREICH.

An International Exhibition in Bee-keeping will be held at Vienna, on the festival of Easter, 1903, arranged by the Central Association of Bee-keepers. It is intended to exhibit bees, hives, instruments, products, books, etc. Information can be received from the Centralverein fuer Bienenzucht in Oesterreich, at Vienna, Austria, I. Schaudergasse, No. 6.

### Union Combination Saw

For Ripping, Cross-cutting, Rabbeting, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line Foot and Hand Power machinery. Send for catalog A.

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To make cows pay, use Sharples Cream Separators. book "Business Dairying" and cat. 288 free. W. Chester, Pa.

## Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your advt in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—To sell four hundred worker-combs in Simplicity frames, at 10 cts. each.

I. D. GALE, Stedman, N. Y.

**WANTED.**—One dollar for 15 W. P. Rock eggs; \$3.00 for 50, or \$5.00 for 100; from 93 to 95 scoring birds; cockerels and pullets, \$1.00 each; 75 cts. for one Golden Italian queen, or \$8.00 per dozen—after August 1st, 50c each or \$5.00 per dozen.

GEO. W. COOK, Spring Hill, Kansas.

**WANTED.**—Bee-keepers to study our advertisement and testimonial of queens in April 1st GLEANINGS. R. F. HOLTERMANN, Manager Bee Department, Bow Park Co., Limited, Brantford, Canada.

**WANTED.**—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid. O. H. HYATT, Shenandoah, Ia.

**WANTED.**—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and 4¼x4¼ sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—To exchange American Eclipse evaporator—contains 78 reversible trays, 7 square feet each—for bees or offers, or will sell cheap for cash. Also want location for bee-yard in the buckwheat district, either West Virginia, Pennsylvania, or Maryland. REINHARD STEHLE, Marietta, Ohio.

**WANTED.**—A buyer for a quantity of honey-cans that have been used once. Write for particulars to L. C. WOODMAN, Grand Rapids, Mich.

**WANTED.**—To sell a number of hives and frames, full of comb, on wire, built on foundation, all in Langstroth size, and in good order, also Barnes foot-power saw, etc. Reason for selling, have quit the bee-business. Address for information, JAKE EVERMAN, North Middletown, Ky.

**WANTED.**—To sell June and July eggs from pure B. P. Rocks at two sittings for \$1.00. Order direct. G. M. RANUM, Petry, Wis.

**WANTED.**—\$5.00 each for Spaniel puppies; brown with white ma kings; handsomest and most affectionate house and children's dog; sire and dam highbred, very gentle, and intelligent. Choice O. T. C. pigs same price at 6 weeks. MYRON C. SAFFORD, Mt. Safford Farm, Salem, N. Y.

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## Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

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Wetumpka, Elmore Co., Ala.

## QUEENS, QUEENS

**Old Standbys.**—The A. I. Root Co., to whom we have sold queens for many years, wrote us last May, thus: "Are you running low on queens? We hope not, as you seem to be our standbys. Send us 24 per week instead of 12, till further orders."

**Beat Any Thing He ever Saw.**—The Cyprian queens you sent me last year beat any thing I ever saw rearing brood and filling their hives with honey.—J. Nielson, Huntington, Utah, Sept. 4, 1901.

**Is Great.**—The nucleus you sent me last fall is great—the finest queen that ever crossed the plains. Please duplicate her this time. Mr. Jordan says the nucleus you sent him cast two fine swarms.—G. R. Warren, Fruitvale, Cal., May 12, 1901.

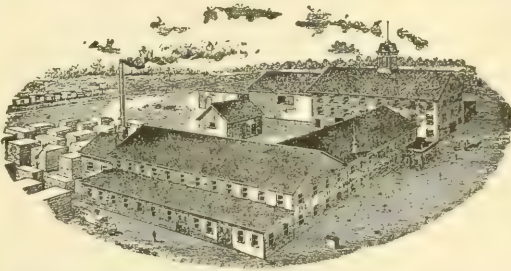
**\$50 Queens.**—My nice queen that you sent me, and I put in a hive with a handful of bees on the 6th day of last June, has now nearly filled her 30-lb. super for the third time. No man's \$50.00 bill could take her. Please send me another one like her as soon as possible, and keep a dozen ready for me like her for the 20th of April next, and I will make you a nice present.—M. Brown, Station A, Little Rock, Ark.

We breed Italians, Cyprians, Holylands, Carniolans, and Albinos, in separate yards, 5 to 20 miles apart. Prompt service. Safe arrival guaranteed. Bees by the point, nucleus, full colony, or by the carload.

Prices: Tested, \$1.50 each; \$8.00 for six; \$15.00 per dozen. Untested, February, March, April, May, \$1.00 each; \$5.00 for six; \$9.00 per dozen. Fine breeders, \$5.00 each. Send for our catalog, free by mail; tells how to rear queens and how to keep bees for profit.

Agents for Dadant's Foundation and *Gleanings*. Premiums given. Don't fail to get our printed matter. It's ALL free. Bee-supplies of all kinds.

The Jennie Atchley Co., Beeville, Tex.



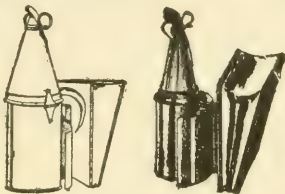
Kretchmer Mfg. Co., Box 60, Red Oak, Ia.

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Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

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Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,

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MADE TO ORDER

## Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 881 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 85c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.



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## Honey Column.

### GRADING-RULES.

**FANCY.**—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

**No. 1.**—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

**No. 1.**—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

**No. 2.**—Three-fourths of the total surface must be filled and sealed.

**No. 3.**—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

### CITY MARKETS.

**DENVER.**—There is very little demand for last season's comb honey now, and prices have to be shaded in order to effect sales. No. 1 comb, \$2.40@2.65 per case of 24 sections; off grades and partly candied, \$1.75 @2.00. Extracted No. 1 white, 7@7½. Beeswax, 24@27, and scarce.

**COLORADO HONEY-PRODUCERS' ASS'N,**  
1440 Market St., Denver, Col.

**PHILADELPHIA.**—No comb honey in this market at present. While producers are offering some new crop extracted honey, there has been none shipped as yet. We quote California in carload lots at 5½¢; in small way, 7; white clover, 7@8. We are producers of honey, and do not handle on commission.

**WM. A. SELSER,**  
June 19. 10 Vine St., Philadelphia, Pa.

**SAN FRANCISCO.**—Comb honey, 10@12. Extracted, water-white, 5½@6½; light amber, 4@5½; dark, 4@5. Beeswax, 27½@30.

**E. H. SCHAEFFLE,**  
June 13. Murphys, Calif.

**CINCINNATI.**—There is hardly any change in the honey market. Comb is not moving much, and whatever is left can be bought at cut rates. Water white is selling at 14@15. Extract-d is in fair demand, and finds steady sales in barrels at 5@5½; water-white alfalfa, 6@6½; white clover, 6½@7. Beeswax is coming in more freely, and sells for 28.

**C. H. W. WEBER,**  
June 18. 2146 Central Ave., Cincinnati, Ohio.

**CHICAGO.**—The market is practically over in comb honey until the new crop comes forward. So far none has appeared in this city. A little of the extracted is on sale, but it is chiefly of a low grade of amber selling at about 5c a pound. There is a large amount of the white extracted honey of the crop of 1901 still on sale bringing 5@6, according to body and flavor. Beeswax sells upon arrival at 32.

**R. A. BURNETT & Co.,**  
June 18. 199 South Water St., Chicago, Ill.

**KANSAS CITY.**—There is very little doing in honey at this time. The supply of comb on the market is not very large, although there is a good supply of extracted. We quote comb honey 13@14; extracted, 5½@6; beeswax, 25@30. No new honey in the market.

**C. C. CLENNES & Co.,**  
June 23. 306 Grand Ave., Kansas City, Mo.

**WANTED.**—Extracted white-clover honey. Will pay highest price for the right article.

**H. B. PHILLIPS,** Auburn, Me.

**FOR SALE.**—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

**OREL L. HERSHISER,**  
301 Huntington Ave., Buffalo, N. Y.

**FOR SALE.**—Lot of fancy white-clover honey, also some basswood, new, 300-lb. barrels at 63¢; 60-lb. cans at 7½¢.

**E. R. PAHL & Co.,**  
Broadway & Detroit Sts., Milwaukee, Wis.

**FOR SALE.**—50,000 lbs. extracted honey white, 5½¢; light amber, 5c; amber 4½c; in barrels of about 360 lbs. net. Parties wanting large amounts write for samples.

**R. L. TUCKER,** Blountstown, Fla.

**WANTED.**—Honey and beeswax. Mail sample, and state price delivered at here.

**C. H. W. WEBER,**  
2146, 2148 Central Ave., Cincinnati, Ohio.

**WANTED.**—Comb and extracted honey. State price, kind, and quantity.

**R. A. BURNETT & Co.,**  
199 South Water St., Chicago, Ill.

**WANTED.**—Comb honey in Danzenbaker sections. We can use both white and amber.

**THE A. I. ROOT Co.,** Medina, Ohio.

**FOR SALE.**—Extracted honey, from alfalfa, at 7c per pound. Send for sample.

**D. S. JENKINS,** Las Animas, Col.

**FOR SALE.**—Whitest alfalfa honey, \$9.00; tinted, \$7.80, per case of two 60-lb. cans, net.

**ARKANSAS VALLEY APIARIES,** Las Animas, Col.

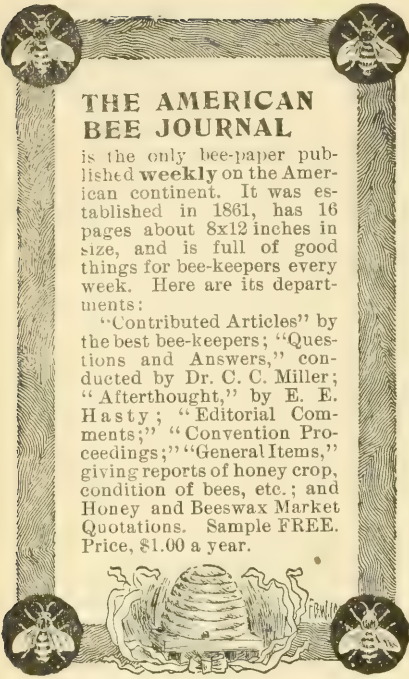
We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer.

**SEAVEY & FLARSHHEIM,**  
1318-1324 Union Avenue, Kansas City, Mo.

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I have had 18 years' experience in the production of honey, and during that time I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then, by crossing these different strains, and selecting the best, and breeding from them, I have secured a strain of stock that is the equal of any for honey-gathering. This year I am breeding from a daughter of Root's famous \$200 queen, and from the stock of J. P. Moore. Warranted queens, in any quantity, will be sold at 55 cts. each, and satisfaction will be guaranteed in every case, or money will be refunded.

**L. H. Robey,** Worthington, W. Va.



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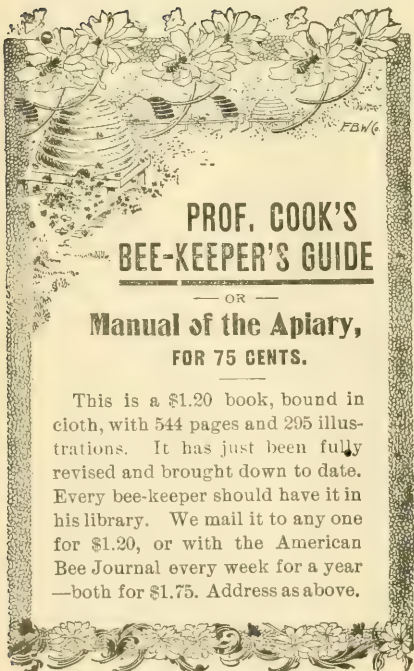
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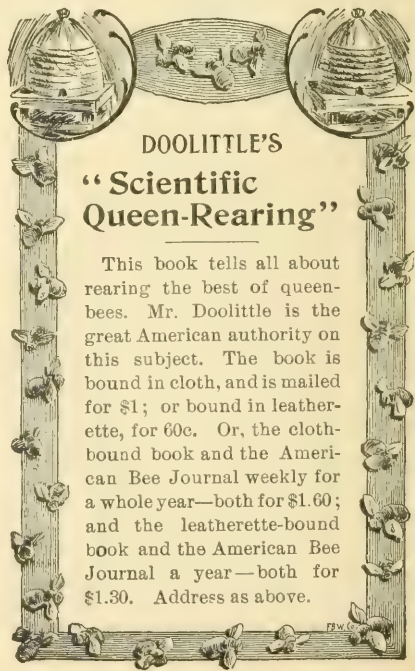
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[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.

E. R. ROOT, Editor of Apicultural Dept.

J. T. CALVERT, Bus. Mgr.

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 TO BEES,  
 AND HONEY,  
 AND HOME  
 INTERESTS.

ILLUSTRATED  
 SEMI-MONTHLY

Published by THE A. I. ROOT CO.,  
 MEDINA, OHIO.  
 \$1.00 PER YEAR

VOL. XXX.

JULY 1, 1902.

No. 13



“THERE ARE many worse things in this world than tobacco,” p. 509. Yes, there’s strong drink, and—and—and—say, what is that other thing that’s worse than tobacco? [The police-court records give the whole category.—ED.]

I AM QUOTED in Gerstung’s *Bienenzucht*, p. 76, as saying that, instead of 17 days, only 13 are required for the development of a queen in a strong colony. *Fifteen*, not 13, is what I said, good friends Gruendig and Strauli. Kindly correct.

ADRIAN GETAZ, p. 504, finds but one objection to the honey-producer buying his queens—the damage in the mails. I should make a second objection: The honey-producer would not have the pleasure and advantage of working for improvement of stock.

MR. EDITOR, I was in dead earnest when I spoke of Demaree’s plan of preventing swarming as being a success, p. 499. Of course, it can be used only by extractor men. [If you were in dead earnest, doctor, then I was not familiar with the plan.—ED.]

DO BEES work on tomatoes? [Do you mean on the tomatoes or on the tomato-flow-ers? I have seen them work on the fruit when broken by chickens, or because it was overripe. I do not remember to have observed them working on the blossoms in the spring.—ED.]

“DO THIS as rapidly as possible,” says Adrian Getaz, p. 506, in speaking of finding a queen. I’m not sure that I ever saw that in print before, but *rapidity* is an important factor in the case. The queen is constantly trying to get away from the light, and if you work *slow enough* you may be pretty sure of having to lift out every comb before finding her; whereas if you had been lively you might have found her on one of the first combs. [The “rapid”

part had escaped my notice. Since you draw my attention to it, I believe there is something in it.—ED.]

IF DENVER doesn’t have a good convention it will not be the fault of the bee journals. They never before gave any thing like the advertising they have given this time. [Yes; and the Denver papers have been full of the talk about the big convention. When our bee-keeping friends of the East go west they will find that their collaborators of Colorado are a lot of hustling fellows.—ED.]

THE SUPPOSITION that no wax is to be found in a cell-bottom except the original layer is erroneous. Dr. Bruennich, in the *Schweizerische Bztg.*, shows that there are layers in regular succession: First the original wax; then the shed skin of the larva; then the dejection of the bowel; then these three layers are continuously repeated, only the layer of wax is exceedingly thin after the first. [This is news to me. But why should bees put wax in the bottom of the cells? We are certain that they remove the shed skins whenever they become too thick.—ED.]

AS I READ about A. I. Root’s forest home by the babbling brook, I keep wondering why he doesn’t tell us about his windmill. Is it possible that he is living all this time without a windmill? [A. I. Root’s windmill—the one he used to write about—has gone all to smash. The 2000-barrel tank burst during some repairs. A heavy wind came along one night and finished up the old mill; and now all you would see if you were at Medina is a large pile of brick standing where the large tank of water had once stood. But A. I. R. has a new scheme up in his new Michigan home. He does not have to have wind to pump the water, for the water comes from a spring *down hill*. Gravity, instead of wind, does the work, in other words.—ED.]

HERE’S the last half of June; and instead of hustling to get on additional supers, I’ve been hustling to feed. That tells the story here. [The weather is cool, and has been cold for a week back. A week ago, or a

little over, we had ideal honey weather. There is still a chance for the bees to get a crop providing we can only have warm weather for a change. We have had rain—too much of it—and weather so cold that we have been obliged to start our furnace fires at our homes; and even some of the rooms in our factory have had to be warmed, when a week ago the problem was how to cool them off so the employees could work. It is these rapid changes—fearful extremes—that is playing havoc with the honey business this year; and the situation is the more serious because these conditions have prevailed over almost the entire clover and basswood belt of the United States.—ED.]

THE SUGGESTION is made in *Farmers' Review* that spraying fruit-trees when in bloom might be a desirable way to thin fruit. It is to be hoped that better light will come to the *Farmers' Review*. [It is indeed an excellent way of thinning down fruit; but that *very fact*, if admitted, ought to convince the fruit-man that, for his own interest, he should not spray during bloom. The great problem is not how to thin out the fruit, but how to get more fruit.

There are facts on record to show that spraying during bloom has so thinned out the fruit that it cost the fruit-growers in some cases thousands of dollars; and those same men were formerly the loudest in demanding the repeal of the New York spraying law. The parties I refer to are not many miles away from Geneva Experiment Station, New York.—ED.]

FARMERS' BULLETIN No. 18 says of sweet clover: "As a restorative crop for yellow loam and white lime lands this plant has no superior; and for black prairie soils it has no equal." [In some parts of the great West there are what are called "alkali lands." Irrigation for a series of years has forced the alkali out of the soil to the surface, with the result that it kills every thing except pear-trees, salt-weeds, and sweet clover. I know a spot in Western Colorado—perhaps the finest location in the world—where there are hundreds and perhaps thousands of acres of alkali land covered with nothing but sweet clover, for nothing else will grow. A bee-keeper whom I know located in that vicinity struck a bonanza, for no ranchman or farmer will invade his territory—at least not till all the other available land is taken up. The time may come, when land is scarce, when the ranchman will be called on to use the alkali land and grow sweet clover for a hay crop. Then, perhaps, the world will wake up and discover that it is not an enemy but a friend.—ED.]

SPEAKING of bleaching combs, p. 520, the editor says, "At one cent, on a basis of 10,000 lbs., he would make a clean profit of \$100." Did any man since Adam ever have 10,000 lbs. that needed bleaching? In this locality, no combs need bleaching unless they are left on too long, and what's the use of leaving them on too long? [You for-

get, doctor, that there are localities where combs are stained more than around Marengo. Now, is it a very hard stretch of the imagination, if J. E. Crane had 6500 combs to bleach, for one to suggest that, on a basis of 10,000 lbs., one can make a clean profit of \$100? Mr. Crane did not say that this 6500 lbs. was an abnormally large number; and when I spoke about 10,000 I used an even figure to show how much could be earned in the way of bleaching. A year or so ago I was talking with Mr. Hutchinson, and he said frankly he could not see any reason why we should devote so much thought and attention to the bleaching of combs, showing that the staining is not common in Michigan. But if one will go over the country as I have done he will run into localities where a large part of the honey crop, even if taken off early, is stained or discolored; and one who is in the business of buying honey necessarily comes in contact with a great deal of discolored goods. If you were at Medina you would see the need of pounding into the heads of bee-keepers, at least, the importance of bleaching their combs before sending them to market. It should be bleached *before* it is graded, crated, and shipped to market.—ED.]

FORMALIN as a cure for foul brood. *Bienenwirtschaftliches Centralblatt* directs as follows: Fill a hive-body with infected combs. Have the bottom enclosed all but a small opening, and in the top have a hole a half-inch in diameter. Beneath the hive have a formalin apparatus, consisting of an alcohol-lamp and over it a dish containing a small quantity of formalin (a 40-per-cent solution of formaldehyd in water), the apparatus enclosed in such way that the gas can escape only into the hive above. The lamp is lighted, the vapor spreads through the opening up into the hive; and when the gas can be smelled coming out of the upper hole, this upper hole is closed, as also the under hole, and not opened for four hours. It is only fair to say that this was copied by *Centralblatt* from *Canadian Bee Journal*, although the cure was originally given in *Centralblatt*. Bacilli and spores were in the cells and in the honey; but after treatment no foul brood resulted upon giving the combs to a healthy colony, and the same thing resulted in two other cases. No doubt the cure will be thoroughly tried in Canada, and it deserves trial further south. [Somehow I do not have much faith that a colony treated as above described would be entirely cured of foul brood. I have personally tried the use of carbolic acid so strong that it would take the skin off my fingers, and yet it did not kill the spores. We have used naphthol beta; and while I am satisfied it is a splendid thing to use in syrup to feed to bees, yet I am fully convinced that neither naphthol beta nor any thing else in the way of a drug, unless used so strong as to be awfully corrosive, would destroy the *spores*. Scientific men know that the spores of disease—at least some



diseases—are very difficult to kill. The bacilli, or the organisms produced from the spores, are very easily killed and can be handled by any of the germicides.—ED.]

GERSTUNG says the long-tongued bee is an American humbug, the length of tongue depending upon the nourishment during the period of development. The same colony that in April produced short tongues will in June produce long tongues. Another problem for Prof. Gillette. [While the long-tongued bee is somewhat under the ban, they are by no means a humbug. A few days ago we received a letter from J. D. Fooshe, stating that some virgin queens he got of us, and which were reared from our long-tongued queen that was killed by poison, were something remarkable—remarkable for honey, for energy, and for general work. Of course, this does not prove definitely that it was the long tongues that made such results possible. But in our apiary we have so far found that the good workers *usually* have longer tongues than the average. While long tongues are not the only desideratum by any means, yet I am confident that the future will prove there is something in them after all. But there may be something in what Gerstung says about tongues being longer at some seasons of the year than at others. While I have found this to be true, the difference is so very slight that one would hardly take account of it. But I should question whether the nourishment had any thing to do with it. We know that our own muscles will develop by use. During the height of the honey-flow the bees are constantly straining to reach to the bottom of the deep flower-tubes; and that constant straining might have some effect in developing and elongating tongues slightly.—ED.]

"I DID NOT KNOW," quoth ye editor, p. 499, "that there was any plan that was a sure preventive of swarming." That depends a little on our understanding of matters. When a colony has swarmed once, and has no desire for after-swarming, we consider it practically safe from swarming again that year. Any plan that makes it as safe as that I should call "a sure preventive," even if it might not be entirely satisfactory. With that understanding I think there are at least two plans aside from Demaree's. One is to take away all brood about swarming time, and the other is to get the bees to rear a young queen about swarming time. Giving a young queen reared elsewhere will not answer. I've had a swarm issue with a young queen that I had given not a week before, she having just begun to lay; but when a colony has itself reared a young queen, and that queen has begun to lay, I never knew or heard of such a colony swarming till the next year. Gravenhorst gave this as reliable without being able to explain why the young queen must be reared in the hive itself. [I meant by "sure preventive" a plan that is absolutely infallible. I know there

are plans that are practically a success; but they have some objectionable features that prevent them coming into general use. In large apiaries it would not be practicable for all colonies to have a young queen of their own rearing; neither would it be advisable, in the other case, to take all the brood away. Caging the queen is a success, but it has its objectionable features. Reducing the colony down below its normal strength will prevent swarming; but a weak colony will not gather honey. After all, is there a general satisfactory plan for preventing *all* swarming—even first swarms? The bee-keeping world would give thousands of dollars to get hold of a plan by which it could put strong colonies with *small* brood-nests at out-yards, and leave them there with a reasonable assurance that those colonies would not swarm. I have demonstrated to my own satisfaction that I can control swarming with *large* brood-nests; but the surplus must be some extracted as well as comb honey. Where one desires to run for comb honey only, it is desirable to have a small brood-nest, and little brood, so that when the harvest is closed there will not be a large force of useless consumers.

The wintering problem, I believe, is solved, either the outdoor or indoor plan. Although there is much to learn, yet we do not have the heavy losses we had years ago. But the swarming problem—can we say that is solved?—ED.]



Hovering 'twixt life and death—  
'Twixt coronation and the grave.  
King Edward still maintains the fight,  
With gallant heart and brave.



The *Revue Eclectique* says that in the museum in Cairo, Egypt, there may be seen a bee in a sarcophagus, its wings stretched out, its feet stuck fast to the bands enveloping the mummy. The insect probably alighted on the bands just as the embalmer was putting on the preserving oil according to the customs of those times. Time has paid great respect to the fine structure of the bee, and it even now seems just ready to fly—a beautiful type of the soul.



#### BRITISH BEE JOURNAL.

Concerning the value of bee-keepers' associations to bee-keepers themselves, the following editorial in our London contemporary for June 5 covers the ground so ably that the only condensation of it I care to make is to reprint it in smaller type. It will open the eyes of bee-keepers if any thing will:

"A CASE IN POINT."

There has from time to time been a considerable amount of what may be called "expressions of opinion" regarding the value, or otherwise, of bee-keepers' associations to bee-keepers themselves.

As is well known, there are in various counties throughout the Kingdom a number of associated societies, the members of which are bee-keepers whose object is to work unitedly for the common good of the craft. But it is less well known—save to the hard-worked secretaries—how much of the difficulty there is at times in collecting the small annual subscriptions that have so important a bearing on success or failure—as the case may be—in promoting the objects for which these associations are established.

It is no less regrettable than true that there also exists a class of bee-keepers whose view of associated effort is bounded by the limits of their own apiaries, or by what affects their own actual profit from the season's bee-work. To talk to them of laboring for the greatest good to the greatest number is so much time wasted. It is more after their manner, when applied to for an overdue subscription, to reply by the oft-recurring question, "What do I get for my money? You don't sell my money for me." Well, there is no need to go over well-trodden ground in trying to show such men how utterly one-sided and selfish is the view that unless one "sees his own back and a bit over" he gets no advantage over membership. Surely the benefit to the industry, as a whole, which is bound to come from well-directed effort on the part of bee-keepers' associations should be acknowledged by any fair-minded man. But to bring the matter home, let us say a notable "case in point" has just come to our knowledge which can hardly fail to prove an incontrovertible argument in our favor, unless those we have in view are determined not to be convinced.

We refer to a letter received a few days ago from a bee-keeper in Wales, whose case is not only distressing but instructive to a degree in pointing the moral we desire to enforce. He writes as follows: "Will you kindly inform me what is the matter with the comb sent? I rather suspect it is affected with foul brood, and so I ask, What is the best method of dealing with it at this time of year? I have eighty hives, most of them more or less affected in the same way. I will gladly pay for your advice on the matter, which I should like to have as soon as time admits. I enclose stamps for reply by telegraph in the meantime."

Beyond name and address (which are for obvious reasons omitted), the above is all we know of the writer or his bees. The eighty hives may be all skeps or all frame hives, and the writer may be a farmer or follow another occupation; we do not even know how long he has kept bees, or if a reader of our journal. We do, however, know that our badly stricken bee-friend knows nothing whatever about foul brood, for the sample of comb sent was absolutely rotten with disease—almost every cell reeking with it. Consequently, there are at present some fourscore of hives (for we can not suppose the exceptions will be other than few in such a hot-bed of disease) standing in one spot—enough to contaminate the whole of Wales in a season or two, and there is, unfortunately, no association, of which we have any knowledge, in the county.

Of course, we did not intend our friend to go unassisted, so we at once wired reply, "Very bad case of foul brood; letter follows." In our letter we recommended that no attempt whatever be made at dealing with any one, the only safe course being either to engage a competent expert to inspect the hives and advise further after doing so, or else to burn the lot!

Now, if the above simple statement of fact does not form a case in point strong enough to prove the need for a country bee-keepers' association, and for the associated effort which is so desirable, we should like to know what will. And if these lines have any effect in stirring up fresh energy on the part of associations, and of infusing a sense of more generous and public-spirited views from those whose failure to help is so depressing to men who spare neither time nor money in working for the good of the industry at large, we shall be more than repaid for inviting the attention of readers to the usefulness of the B. B. K. A. and its affiliated county associations.

In the issue for June 12 Mr. F. W. L. Sladen continues an account of his visit to the United States last summer. He spent about two weeks here in Medina. The fol-

lowing extracts may not be uninteresting to the reader:

Mr. A. I. Root, the founder of the firm, was, unfortunately, away when I called, and I was very sorry to miss him. He has, however, ceased for some time to take any active interest in the bees, and his mantle has fallen upon his eldest son, Mr. Ernest R. Root, who presides over the business and edits their well-known bee journal. Mr. E. R. Root was also the President of the United States National Bee-keepers' Association last year, and it was a very great pleasure to me to meet him, for I have seldom conversed with a man who is so well up in the practical side of bee-keeping as he. He was, of course, exceedingly busy, and it was not often I could get a conversation with him in business hours; but when he could spare the time I obtained more information from him in a few minutes than I did in many days by other means.

Our conversations often took turns which specially interested me. One of these was when we chatted on the different British and American names for the same appliances and parts of hives. In America the roof of a hive is called a "cover" and the floor a "bottom-board." Mr. Root thought that the British terms for these parts were good, and spoke of making an attempt to adopt them in America. The photo which accompanies this account was taken from the roof of one of the factory buildings. It is of the Root Company's apiary. There are about 500 hives, which are all kept for queen-raising. Each hive has a grapevine trained to a post growing in front of it to shade the bees from the hot sun, and when I was there (in September) the vines were laden with ripe grapes hanging in large tempting-looking clusters. They were small black grapes, and had a very nice but peculiar flavor, something like that of an alpine strawberry, and they were so abundant that the factory hands were allowed to buy all they could eat at from 2 cents to 3 cents per pound. During my stay at Medina I spent a great deal of my time in the apiary, and was able to compare notes with Mr. Wardell, the apiarist, on many little details in queen-raising.

Mr. Sladen's visit will long be remembered by us with pleasure, and we heartily reciprocate the kindly feeling expressed in his article.



#### REARING QUEENS TO ITALIANIZE AN APIARY.

"Good morning. Is this Mr. Doolittle?"

"That is what they call me around here."

"My name is Barber, and I have called on you this morning to see if you will tell me something about how I can Italianize my apiary so as to have all pure Italian bees."

"How large an apiary have you?"

"I have 125 colonies, all told, 10 of which are pure Italians, while some 15 to 20 are hybrids and the remainder blacks; but all of my neighbors for miles around have either blacks or hybrids, so that it seems almost impossible for me to get ahead at all."

"Could you not get these neighbors to allow you to Italianize their bees? I know this would cost you quite a little; but after it was once done you would be master of the situation."

"I hardly think they would all allow of this, even could I do it; but what stands in the way more than any thing else is, that nearly all of these black and hybrid bees are in box hives, so that the undertaking



would mean more to me than where frame hives were used; and the bees being in box hives allows of ten times the drones being reared above what would naturally be reared were these neighbors progressive enough to use frame hives and restrict the building of drone comb. Now, under these conditions how can I, in rearing queens for my own use, secure them purely fecundated?"

"There are several ways of working looking toward the accomplishment of this, all of which I have used during the past 30 years."

"What I wish is a good practical plan."

"Such a plan is the following: Give to all the colonies which have good Italian queens one or two frames of drone comb, so that large numbers of drones will be reared in these Italian colonies, which will be very likely to secure the pure mating of from one-fourth to one-half of your young queens; and when one is found that is impurely mated, kill her and give the colony a queen-cell from your best pure breeder, and try again. As your colonies increase, your drones will increase also; and the more drones reared in your Italian colonies the better will be your chances of having all purely mated."

"That would require a lot of work weeding out the impure queens. Have you any thing different from this?"

"Yes; and were I to reject this, the next I would try would be this: Give frames of emerging worker brood to your drone-rearing colony early in the spring; and this, together with a little warm feed given each night, will cause the desired queens to lay in the drone comb early, through the stimulation given, thus giving you strong colonies with plenty of drones before your neighbors' colonies rear any drones. As soon as any drone brood has been capped from three days to a week, start to rear queens, and in this way you will have your queens ready for the first drones which appear. The main objection to this plan is, that such rearing of queens comes at a time when it is likely to interfere with your crop of honey; for in all queen-rearing the colony is thrown out of its normal condition; and whether the old queens are taken away from their colonies to give place for the queen-cells desired, or nuclei formed to take care of these cells, this interference comes at a time when all should be booming as much as possible along the line of rearing the laborers (bees) in time for the honey harvest, which, as a rule, will be from 30 to 50 days ahead. I am one of those who believe that impure stock, with a good yield of honey, is to be preferred to *pure* stock and little surplus honey."

"I think I should like this better than the other, only, as you say, it would interfere to a damaging extent with the yield of honey. As you said you had several plans, tell me another, as that may please me better than either of those you have spoken of."

"Another plan is, to wait till fall about raising queens, when if you can preserve

the desired drones till all of your neighbors' drones are killed off, you will have every queen to mate with the drones you desire."

"Let me interrupt you long enough to ask how I can have my drones preserved when others are being killed. It is something I have not been able to do."

"My way of preserving drones is to gather all the drone brood I can find in the apiary from the queens I have decided shall be drone mothers, doing this just at the close of the honey harvest, soon after which we may expect drones to be killed, and mass this brood in one hive, tiering it up as much as may be necessary to accommodate this brood and lots of honey; for the larger the hive and the more honey it contains, the more active will these drones be during the late fall. At the time of massing this drone brood the queen should be taken away from the colony; and as often as a new queen commences to lay she should be taken away also, and this colony kept supplied with sufficient worker brood to keep it in a prosperous condition. In this way you will have reason to believe that all the queens will be purely mated; and were it not that this plan requires much extra work and care as well, in feeding the queen-rearing colonies, that fairly good queens may be reared out of season, and, also, that this late manipulation of colonies forfeits our chances for successful wintering, I should say that this was the best of all the plans for securing purely mated queens."

"I thank you for this plan, especially for telling me how to preserve drones, for I think I can now accomplish what has been a failure with me heretofore. Have you still other plans?"

"Another plan is to take a hive containing many of our best drones to some locality isolated four or five miles from other bees; and, as often as may be, take a load of nuclei, supplied with queens from our best mother, they being from three to five days old, to this isolated place, leaving them there from eight to ten days, when they can be brought home with laying queens, which will, as a rule, be all mated with the desired drones. With a proper rack fixed, from 20 to 30 can be carried to and fro at a time, so that it is not as laborious as it at first appears, and it has this advantage: Our queens can be reared at a time when nearly every queen will be perfection itself, all being reared in the height of the honey season, when the best queens can be reared with the least work."

"That sounds well, but I do not know that I can find a locality isolated that far from other bees. Have you any thing else?"

"Still another plan is to rear the queens and drones in the best part of the honey season, and, when ready, take the drone colony, and as many nuclei as we have queens of mating age, into the cellar or some dark room, before the bees are flying in the morning, leaving them there till some three or four o'clock in the afternoon, after all other drones have ceased flying for the

day, when they are to be brought out and allowed to fly. If each nucleus and the drone colony are fed a little warmed diluted sweet just before setting out, and the hives set facing the sun, queens and drones will fly the same as they would were it three hours earlier in the day."

"Well, I have bothered you more than I intended, and I wish to thank you for the plain way and the many plans you have given me. I will now be going."

"If I have helped you any I am glad of it, and you are certainly welcome. But before you go allow me to say that, after having tried all of the plans given, I have come to the conclusion that, for the practical apiculturist, the first plan is the one to follow; and, let me whisper in your ear, that the mated queens which you will get by this practical plan will give you just as good results in honey as will any of the purely mated queens; and *honey* is what the average bee-keeper is after. To my mind, what the average bee-keeper wants is one or two pure Italian queens from which to rear his queens, then let them mate as they please; and let me assure you that such a mode of procedure will give any but a queen-breeder perfect satisfaction, and the breeder also, so far as honey-gathering is concerned. Of course, it will be necessary to have a good queen to rear stock from every two or three years, else we shall soon run into a race of bees we shall not be satisfied with."



#### SWARTHMORE'S REPLY TO "QUEEN BREEDER."

Small One-frame Boxes for Fertilizing Queens; is the Plan Feasible in the Hands of the Average Bee-keeper?

BY SWARTHMORE.

Queen Breeder attacked me in veritable hybrid spirit; but I have rubbed out the stings, and will now light up the smoker. Perhaps his temper may yield to the bel-lows.

Queen Breeder prefaced his remarks with the statement that he had had no experience with nuclei of smaller size than three or four frames (L. size, I presume), which means he has never attempted before to mate queens in any other way than by practically full colonies. This being so, he should not have jumped into the thing so heavily at the start. Would he advise a beginner in apiculture to start with 300 booming colonies? No; he would say, "Start small; study, experiment, and work up."

He did not follow in detail the directions as stated in his attack. He used a smaller box, thus making five entrances, or flight-

holes, on a side, similar in alignment, and quite close together, which is undoubtedly the cause of the loss of fully half his queens at flight. He made—well, simply a mess of securing brood in the little combs, and wonders why eggs were removed from the "north side." Simply because of the honey-flow he speaks of. Does not Queen Breeder know that bees frequently remove eggs and larvæ, not protected by developed brood, to make storage room for honey during a sudden flow? This often happens, even in well-regulated hives. Allow me here to say that a few nucleus colonies kept upon small combs (fitted into large frames, of course), the season through have supplied for me all the brood in section frames that could possibly be used, at no loss and with very little trouble. It was out of the question to try to tell in a single magazine article the many ways of securing brood, so I gave what seemed to me at the time the quickest and best. Most bee-keepers de-queen to start cells (or ex-queen which is almost the same in principle); and by hiving such bees, after the cells have been started, with a young laying queen, on to a set of smalls combs, brood will be secured quite rapidly. In my exhaustive work the brooding of small combs is thoroughly covered.

Miniature queen-fertilizing nuclei have been used by Mr. Alley for over forty years. Many queen-specialists have never used any but small frames for mating queens, for the reason that they are more economical than large ones, more easy of manipulation when once one "gets the hang of them," and undoubtedly successful.

After Queen Breeder found his 200 mated and laying queens in the little boxes he speaks of he should have taken them from the frames and joined the remaining queen-less boxes, if testing was desired. His loss here was purely by his own blunder.

Queen Breeder closes by telling what a bother the lids are to adjust and readjust. In this he is quite right. I did not claim perfection—far from it—nor do I claim it yet, nor will I ever claim it. But the box has been improved, and can now be handled with much more ease. A number of the improved boxes have been sent to Mr. F. Greiner, Mr. Holtermann, the Rambler, Mr. W. H. Laws, and several others, who have kindly consented to give them a thorough trial, and to report their success or failure. Let us wait for these reports.

It is still my belief that the small fertilizing-boxes can be used commercially if understood. They were designed in the first place, more especially, for those who would mate a few queens for themselves at small cost, without much disturbance to full colonies. There was no need of so much nonsensical tearing asunder of colonies as Queen Breeder went through with. He simply did not quite understand what he was to do—that is all.

We have used these little boxes commercially in numbers as high as 300, and to-



day we are beginning to "set out" again, from which we are positively certain of obtaining the full complement of fertile queens—less natural loss, of course. However, it is far from my intention to force these boxes upon the public. If the gentlemen named above try them, under full directions, and then find them wanting, then I shall abide by their decision, and keep them to myself forevermore.

In closing I should like to venture a few words on the question of fertilization of queens from boxes attached inside a hive. You say, Mr. Editor, that you are quite successful with three or four to the colony. You declare that a greater number of boxes can not be worked in one hive with positive assurance that all the queens will return. Certainly not; but what is the harm of putting ten boxes into a two or three frame nucleus hive, even if all the queens do not return? Should you not be satisfied with six (which is full success, I should say)? Six is greater than four; and should eight return, as they frequently have with us, are you not just so much better off? It costs nothing to keep the boxes there. Cells are quite cheap to grow by present improved methods. I have had the ten queens return, and the sight of ten handsome queens, all in one hive, living peaceably together for months, has caused me to feel that I can not quite yet pitch my fertilizing-boxes on to the heap as you would have me do.

*Mr. E. R. Root:*—I have just received the following word from Mr. W. H. Laws, who is using the inside fertilizing attachments to 2 and 3 frame nuclei quite extensively:

I got 30 queens out of 60 cells in the professional boxes, first trial. W. H. LAWS.  
Beeville, Texas, June 11.

[It is true, as you say, that miniature queen-fertilizing nuclei have been used by Mr. Alley for over forty years; and while his frames are about the size of yours,  $4\frac{1}{2}$  by 5, he uses *three* of them instead of one, as do you; and then Mr. Alley emphasizes the importance of placing these nuclei as *far apart* as the size of the yard and other conditions will permit; for he says in his book, young queens will have difficulty enough in locating the right hive, and in this he is strictly correct. Your fertilizing-boxes contain only *one* frame, and there were six of them on a pair of stakes, three having entrances on one side and three on the other, and not more than six or seven inches apart. Even if we consider your more improved form of having the fertilizing-boxes attached to the side of a hive of a populous colony, the close proximity of the entrances is just as objectionable as when the boxes are suspended on a pair of stakes.

While Mr. Alley uses these small frames for nuclei (and they certainly have features that are valuable) he speaks particularly of the fact that robbers are inclined to molest them, and in this he is exactly right. But he has a plan, he thinks, for circum-

venting the robbers by dusting flour on the backs of the marauders, tracing them to their hive, and then giving them a thorough fumigation with tobacco smoke. It is true that that colony, under the influence of the narcotic, will not, for the time being, bother the nuclei; but the very moment it recovers it will go back to the stealing business as vigorously as ever.

In a word, we may say small nuclei are objectionable. First, because the bees are liable to swarm out; second, they are so weak they can not withstand the attack of robbers; and, third, if the entrances are located as close together as you recommend, a large percentage of the queens will be lost on their fertilizing-trips. I do not deny that expert queen-breeders *can* make the plan work; but, can they do it day in and day out practically?

We have tried small nuclei and found, after the honey-flow, we had almost incessant trouble from robbing; and the nucleus that is being pestered by robber bees is in any thing but a favorable condition in which to rear queens.

Our plan of having queens fertilized permits our using a full-sized brood-frame, and this is a matter of no small importance and convenience. The little nucleus frames recommended by Alley require a special hive and special every thing. Under such conditions it is not practicable to draw on strong colonies for brood or eggs, as can be done when full-sized standard frames are used. Our plan of fertilizing queens is as follows:

A full-sized upper story is divided off lengthwise into three or four bee-tight compartments. The under side is covered with wire cloth, and the dividing partitions run from the wire cloth clear up to the cover. Each nucleus has a small entrance, and a doorstep on one side or end. One nucleus will have one side for an entrance, one of the inner ones one end, the other inner one the other end, and the other outer nucleus the remaining side. By this plan there is only one entrance on a side or end, and each points to one of the four points of the compass. One of these fertilizing-supers, or upper stories, is put on top of a strong colony. A frame of hatching brood, or young brood and eggs, with adhering bees, is put into each compartment. Cells are then given to each nucleus, or young virgins are run in. The warmth of the strong colony below rises up through the wire cloth, and gives the four little clusters of bees all the heat they require. The several entrances pointing in four directions offer little or no confusion, and the queens come back from their flights and are fertilized with hardly a failure.

But you ask, "Are not six queens better than four?" Yes, if you can average that. But when one takes pains to have cells prepared and reared in strong colonies he can not very well afford to lose the product of four good cells from a valuable breeding queen. A strong, vigorous virgin, from a

choice mother, ought to be worth half the money she would bring if fertilized.

In the case of Mr. Laws he succeeded in getting thirty queens out of sixty cells. He is an expert queen-breeder; but in our own yards we should feel that the loss of thirty virgins (or 50 per cent) would be such that all the profits would go glimmering. Of course, we do not succeed in getting *all* of our virgins fertilized; but if we should lose 50 or even 40 per cent, as you seem to imply you might lose by your plan, we should consider it as too large a percentage to be at all considered, and the plan a failure.

I don't like to come down on the small nuclei, but I believe that they will prove only a disappointment and a vexation of spirit, for the *average* bee-keeper. If I am wrong, I hope my friends will come at me "with hammer and tongs," brickbats, and any old thing except *mud*.—Ed.]

### BEE-SPACES, ETC.

#### Some New Old Things; Closed-end Frames.

BY A. I. ROOT.

I want to say to my dear old friend Dr. Miller (see p. 455) that I felt exceedingly glad to find among the Straws a question to his old friend; but before I answer it I want to say to Ernest that I never thought of nor said *one inch* is a "proper bee-space." The matter came up in this way: A friend of mine, and a bee-keeper as well as a wood-worker, wanted to make me a lot of two-story L. hives that would be exactly right. I paid him \$4.00 each for 50 hives. Now, when these hives were put into use, some of the frames in the upper stories mashed bees by striking the top-bars below, while others were so high above the top-bars the bees built comb and filled it with honey between the upper and lower stories. My good friend, when apprised of the fact, said he would come and make every thing right, free of charge, and he would fix the lot of hives so any upper would go on any lower story, keeping the space "within bounds" all the time. Well, he and I worked a long time at it, but we were both compelled to give it up. During these trials we both decided this space must never be *greater than one inch*. The vexation and disappointment I went through with at this time made me declare I would not only make some hives where all parts would be interchangeable (like the Waltham watches just then coming out); but that we must have also *frames* with both top and bottom bars that would not sag or bend down, no matter how much honey the bees "piled" into them.\* I worked long and hard at many desirable problems, and gave them up as being too difficult and two complex for attainment, but have had a series of "happy surprises" late years in seeing Ernest tackle that very thing, and *succeed*. It just

now occurs to me that I felt a little cross at him because of what he said about that "one-inch bee-space;" but perhaps he just wanted to vex me enough to "call me out;" if so, it is all right, for I have been getting ready to write something on bees for some days back.

Before I forget it, I want to say that Ernest has not only John, Arthur, and Huber to help him work out improvements, but he has the help of as fine wood-workers and machinists, almost, as the world affords. Perhaps I had better mention that, when he spent so much time experimenting with "fences," I said I had been all over that ground, years before, and when he finally made it a success I said again they could never be made cheap enough so the rank and file of bee-keepers could afford them. Of course, you all know how it turned out.

Well, I have, in a pretty little nook down by that bicycle-path (and the peach-trees), two colonies of bees. A few days ago the boys working for me said my bees would swarm, and one day they declared they were swarming. I explained it was the young bees playing, and tried to convince them I knew a few things about bees. A few days later one of them asked me if I knew a plan had just been discovered for "sending queen-bees *by mail*." That evening I transferred my one colony to a hive of the very latest pattern, sent me by Ernest (making two colonies of it), and at the same time I gave the boys a little talk on bees. The transferring took just 20 minutes, and I cut out some of the combs too; but when I looked over that new hive and "took in" all that had been worked out by the busy brains of the bee-keepers of the world during the years I have "sort o' dropped out," when I noted first one point and then another that had been so successfully and so *beautifully* managed, I could not but raise my heart to God in thanksgiving and praise that he had permitted me to live to see, with *my own eyes*, the realization of my dreams of years ago—yes, *more* than realized; for in my wildest flights of imagination and enthusiasm I never expected to see *all* that modern bee culture has already accomplished. Now to get back to that "bee-space."

I hope there are no bee-keepers nowadays who tolerate any such bungling work as to have a *whole inch* bee-space anywhere in the hive. If there are, they had better get at least one up-to-date hive, say for comb honey, and try it one season. The only thing that worries me about the new hive is the fact that they are not all as perfect as this, and *interchangeable*.

Talk about fractions of an inch! why, there are things about this hive where the variation of even "a hair's breadth" would spoil the beauty of its working. At first I thought it would be difficult to open and close with a lot of bees in the way; but in 24 hours I opened it without smoke or veil, did it very quickly, didn't kill a bee, because every thing went into its place so nicely.

\*Wiring the combs so as to brace and support the bottom-bar came in at this time.



Oh how I do wish some of the readers of GLEANINGS could call on us! We don't have many visitors out here in the woods, and I have ever so many things (besides that bee-hive) to show to my friends, and to talk about. Ernest has talked about coming; and after he has been here I think he will find I am not exactly "starting life anew as a farmer," in the usual way at least.

Bingham, Mich.

[The hive that father describes is the Danzenbaker with closed-end frames. I had long wished him to try this hive that we were selling, and with which he had had no practical experience. I particularly wished him to see that closed-end frames could be handled easily, especially when properly designed.

While father knows I claim no credit for "inventing" these things, it is a pleasure for me to know that he approves of my judgment in the selection of some of these new old things, and which I have sometimes thought he prematurely discarded in his earlier experiences.

While I have always had the greatest respect for his opinions, I have done my own independent thinking. Sometimes, and perhaps generally, I have arrived at his conclusions. At other times I have formed a different opinion. But in late years our views converge more and more, not necessarily because he comes to my way of thinking, but because I go to his.

It seems a little odd to find A. I. Root a contributor on bees to GLEANINGS, and that I should "footnote" what he may say, as he used to do years ago for some of you who read these lines. But my good mother reminds me that she is the mother of a man *40 years old*. How time does fly! Old Father Time makes wonderful changes in all of us.—THE FORTY-YEAR-OLD MAN.]



REFERRING to the new edition of "Advanced Bee Culture," by the editor of the *Review*, I gave, perhaps, the impression in our last issue that it was simply a reprint in new dress. I wish to state that the book has not only been revised, but new matter has been added; and in the line of the printer's art it leaves nothing to be desired. Mr. Hutchinson is not only an up-to-date bee-keeper, but an up-to-date printer—yes, I will say *art* printer.

ON the 11th of June the wife of Mr. Francis Danzenbaker, well known to our readers, died, after a long and painful illness, at Claymont, Del. She was loved, and admired by all who knew her, and Mr. Danzenbaker has our sincere sympathy in his

bereavement. Our friend has not been able to attend to business matters, nor to the consideration of his hive, for some months back. He felt that his first duty was at the bedside of his loving wife, and he has been constant in his attentions to her. All honor to him for it. Those of our readers who have written to Mr. Danzenbaker regarding his hive, and who have received very brief replies, or perhaps none at all, will be able to understand why he was not able to do more.

#### BEE-GROWERS.

WHAT is the matter with the term "bee-growers" as applied to us by the average writers in the secular or daily press? We hear about stock-raisers, poultry-fanciers, horse-breeders, sheep-growers, and bee-keepers; but the constant repetition of the word "bee-keeper" leads to much tautology (a repetition) in bee-journal literature. The Rev. L. L. Langstroth used to use the word "apiarian." But that seems to have gone out of use. What objection is there to our accepting the word *bee-growers*? It is accurate, and has already grown into extensive use everywhere except in journals devoted to the subject of bee-keeping.

#### COOK'S MANUAL OF THE APIARY.

THE new revision of the nineteenth thousand of the "Bee-keeper's Guide, or Manual of the Apiary," by Prof. A. J. Cook, published by Geo. W. York & Co., Chicago, is now out. It has been most thoroughly revised, and is enlarged by the addition of about 80 pages and 75 engravings. I have read over in a hurried way several of the chapters, and they all seem to bear the brand of 1902, and all of it orthodox, at least from my point of view. So skillfully has the old matter been blended with the new that one would never suspect the book had not been written from beginning to end this year. The scientific as well as the practical part has been gone over completely; and while the book has always been a standard, both in Europe and America, it is now "clear at the front in bee-keeping science and practice." I congratulate the publishers as well as the author. We can furnish it from this office for \$1.20 postpaid, or clubbed with GLEANINGS one year for \$1.75.

#### BEEES AT THE WORLD'S FAIR.

WE have received from the General Press Bureau of the World's Fair the following, which will be of interest to bee-keepers:

The World's Fair management, in their plan and scope of the Exposition, declared they wanted live exhibits; so, in casting about for plans to make our exhibit conform to that idea we interested one of our wealthiest and most public-spirited citizens, Mayor Swink, of Rocky Ford. Mr. Swink is an apiarist, and he has, perhaps, the largest bee-plant in America. He is going to bring his bees to the World's Fair, and they will work here from the time the Exposition opens until it closes. Mr. Swink's plan, which will cost fully \$10,000 of his own money, is to bring to St. Louis enough bee-hives to construct in miniature a counterpart of the Colorado State-house at Denver. The bees

will then be turned out to find material for honey-making in the country surrounding the World's Fair grounds. It will require about 640 hives to construct the little State-house, and in it about five and one-half million bees will work. It will be a great exhibit.

#### THE ATTITUDE OF GLEANINGS TOWARD MR. ABBOTT.

PERHAPS nothing I ever wrote was harder for me to write, or that went more against my inclination, than the semi-official statement in reply to Mr. Abbott, in this issue. Mr. Abbott has always been a good friend of mine, and I hope he is yet; and for that reason it was harder for me to rule against him. But the questions that came before me, while acting as the official head of the Board, were not those of sentiment or friendship, but simply an interpretation of the constitution, of precedent, and of parliamentary law. Before arriving at my decisions I consulted some of the best parliamentarians and lawyers in our ranks. If I have erred, then some of these best men, who, while they *have agreed in every essential detail*, have erred also. If it should develop later on that Mr. Abbott was right and I wrong, and if, subsequently, he should be elected General Manager, by the Association, no one will give him more cordial support through these columns than I. In any case, I propose to stand by the Association, and do whatever in my judgment, with fairness and right, will best promote its growth and prosperity; but in carrying out that idea I shall go by the rule that the Association is more important than any man in it.

#### THE DENVER CONVENTION—RAILROAD RATES, ETC.

THE next convention of the National Beekeepers' Association will be held in Denver, Sept. 3 to 5 inclusive. I feel confident this will be a great convention; and if the season had been in any way good in localities outside of Colorado, it would have eclipsed any other convention the Association ever held in point of attendance, and it may do so as it is. There will be quite a delegation from the East. Mr. Hutchinson will go by the Santa Fe route from Chicago, and Mr. York and Dr. Miller will go by the Northwestern, from the same point. Huber Root and myself have arranged to go over the last-mentioned route, and will probably leave on the same train with Messrs. York and Miller. They expect to leave Chicago Monday, Sept. 1st, at 10 A. M., leaving Omaha via the Union Pacific at 7:30 P. M., of the same day. This same train will arrive at Denver at 2 P. M. the next day. There will be a Pullman tourist car from Omaha, in which the charge for a double berth is only \$1.50 to Denver. The tourist Pullman cars are in every way as convenient and as comfortable as the regular Pullman. I invariably took them myself when I could get them when traveling in the West, because they were not only cheaper but cooler, and the beds are just as clean as on the regular Pullman.

There will probably be a delegation of bee-keepers over the Santa Fe route, with Mr. Hutchinson, and also a delegation over the Northwestern route. My brother Huber, who had charge of our exhibit at the Pan-American, will be present to operate the stereopticon for me as he did at Chicago.

#### COLLECTING HONEY STATISTICS THROUGH THE DEPARTMENT OF AGRICULTURE OF CALIFORNIA.

OUR friend W. A. H. Gilstrap, of California, as will be remembered, has shown an active interest in the matter of securing reliable government statistics. He has had some correspondence with Prof. Frank Benton, of the Department of Agriculture, and has forwarded me one of his letters, and suggests that I place it before the public. This I gladly do, as it shows that our "friend at court," as formerly, will do all he can to help us.

*Mr. W. A. H. Gilstrap:*—I am decidedly of your opinion as expressed in your letter of May 12 concerning the manner of collecting statistics of apiculture; that is, that they should be collected through this Department. The National Association will never cover the territory properly and impartially. The mere item of postage would forbid their going into it as extensively as would be necessary in order to have their figures wholly reliable. As long ago as 1894 or '95 I recommended this very thing to those in authority at this Department, and have repeatedly urged it since then. I think the prospect is growing better for undertaking something of the sort. In fact, if I can procure proper clerical assistance (and this, of course, depends upon increased appropriations), I shall insist more strongly than ever upon taking up this work. I shall be very thankful for your co-operation in connection with it whenever it is possible to undertake any thing of the kind, as also your support of other measures that we may be able meanwhile to undertake for the benefit of the apiarian interests of the country.

Yours very truly, FRANK BENTON,  
*Apicultural Investigator.*

#### A FEW MORE WHOPPING LIES.

THE press notices that have gone broadcast over the country, telling about that red-clover queen, dated "Medina, May 30," are so garbled as to be hardly recognizable. The authorized statement that I gave to our local reporter was correct, and was published as given to him. But the reporters for *other* papers scattered over the country, desiring to make something "catchy" and sensational, have made out that we paid all the way from \$200 to \$2000 for her. Some items contained the astonishing declaration that we sold her queens for \$200, and then sagely remarked that our loss must have been *very great!!!!* The original statement that went to the reporter was to the effect that we valued the queen at \$200, and would give that sum for another her equal.

I think it is only proper that we make this statement so that those of our friends who read these sensational reports dated at "Medina, May 30," will not think we had a hand in putting out such whopping lies. I can see plainly now why it was that the comb-honey yarn would go like wild fire. It was sensational, and was passed from



one paper to the other, and each one in turn made the lie still bigger. The yellow journals, it seems, have no more scruple about deliberately coloring up facts and palming them off on the public than they do to give the fact itself, if they ever do. A foundation of truth, made sensational by false coloring, is just the stuff they like, because it makes the papers sell.

RAMBLER'S "JOUNCER;" A USEFUL ARTICLE  
IN THE APIARY.

THIS is the season of the year in the East, at least, when bee-keepers will be taking comb honey off their hives, providing they are fortunate enough to get any of it. In our Jan. 1st issue, Rambler describes his jouncer, and for fear that some of our readers may have forgotten it I desire to call their attention to it again; and for the benefit of some of our *new* readers I will state that it consists of a framework, or four table-legs, as it were, without a top, thoroughly braced together. It stands about two feet high; is just wide enough and long enough to take in a regular hive-super between the four legs. Beneath the super is put a tray of cloth, and this is supported at such a height as will bring the super up flush with the top of the legs. Now, to get the bees out. Lift the super and jouncer off the ground a few inches, and give it a sharp "jounce" downward. Repeat these jounces till the bees are all jarred out on the tray, which can be dumped in front of the entrance.

I know this apparatus is a good thing, because I saw the results of its work while in California. Where the modern escape is not used and can not be used at out-yards, the jouncer is one of the best things ever invented.

HONEY PROSPECTS; A GENERAL FAILURE  
THUS FAR.

THE reports that have been received have been any thing but favorable. The great extremes from cold to hot, the heavy and continuous downpours of rain, days so chilly that an overcoat has been comfortable, and fires almost a necessity in the homes, leaves the hives in all the northern and eastern portions of the United States almost destitute of honey in spite of the fact that I believe there was never a time when there was more white and red clover than now. Just before the last cold spell, about a week ago, we had a few days of warm—yes, hot—weather. The humidity was very high; then for a day or two bees were just piling in the honey, and we began to think the cold spell had been broken. But this was soon followed by another "spell" colder than the first, lasting day after day. In vain did we look for a change; but at this writing, June 26, the weather is beginning to moderate. There is still an abundance of clover in the fields, and the reports over the country show that like conditions prevail everywhere. If we could have ten

days of warm weather there is yet a chance for the bees to make a living and something more; and if the basswood should come we might be able to get a fair crop. But the chances are against us. There ought to be a marked stiffening of prices, as the markets are nearly bare, and there is not very much prospect of any considerable quantity of new honey.

If clover fails, and basswood too, our bee-friends in Colorado, New Mexico, Texas, and some of the other Western States subject to irrigation, are to be congratulated, as they will get good prices.

California, from all the latest advices, will not furnish any considerable amount of honey; and if in the next ten days clover and basswood and clover do not yield, the markets will be almost bare of Eastern honey, except such as will be shipped in.

Our friends have responded magnificently in giving us reports, and I hope they will continue to send them in, for I desire to hear from every locality.

If we could report even one county in any one State as having a crop of honey I should be glad to mention the fact; but so far there has not been a single such report received, out of dozens and perhaps hundreds that have come in. In the mean time we thank our friends, one and all, for the courtesy of their reports, and solicit a continuance of their favors.

WHO IS GENERAL MANAGER? A STATEMENT  
FROM MR. ABBOTT.

THE accompanying statement received from Mr. Abbott will explain itself:

*Dear Sir:*—The notice of acting Chairman Root with regard to the General Manager of the National Beekeepers' Association seems to call for a statement from me. First, the Board has or has not a right to receive Mr. Secor's resignation and elect his successor. If it has a right to do this, then one was elected some time ago, for eight members of the Board voted to elect his successor, and seven of them voted for one man. The three New York directors and myself refrained from voting. The vote was declared, and Mr. Secor was duly notified by the acting Chairman as to the result, and was requested to turn the funds over to the newly elected General Manager, and he wrote that he would do so. However, later, at the solicitation of a disgruntled member of the Board in New York, he refused to do so. If the Board has any authority to act in a case like this, then every member of it who voted to elect a successor to Mr. Secor formally voted at the same time to receive his resignation. As a majority of the Board so voted, of course he is out, and it is all nonsense to talk about reviewing a vote which has been canvassed and the returns announced. Therefore Mr. Secor is not General Manager, and has not been since the day the vote was announced. Mr. Abbott was not "suppo-ed" to be elected; he was legally and clearly elected by a majority of the members voting, and is the only legal General Manager in existence to-day, if the Board has any authority to act on the question. If it does not, and I am inclined to doubt if it has, then Mr. Secor's resignation is before the membership, and they should be given an opportunity to elect his successor at once. As soon as the membership selects another General Manager, the funds in my hands will be turned over to him, but they will not be turned over to Mr. Secor unless he is elected by the membership. The majority of those voting elects a General Manager, according to the Constitution. The Buffalo amendment, in my opinion, only gives the Board authority to remove a General Manager for cause, and then to fill his place; but it does not give them authority to fill his place in any other case. If it does, then all of the members of the Board having received notice of his resignation, and

eight of them having voted for his successor—in fact, nine of the twelve, if my vote should be counted—that ended the matter so far as the board was concerned. A deliberative body may review a vote; but any sane man knows that a vote by ballot is final, if any one receives a majority of the votes cast. It seems from the statement of the acting Chairman, that the Board has decided that it has a right to act on Mr. Secor's resignation. If so, then I am General Manager. This is all I care to say at present.

St. Joseph, Mo.

EMERSON T. ABBOTT.

In the statement made by Mr. Abbott to the public there are two propositions: First, the Board of Directors of the National Beekeepers' Association has the right to receive the resignation of Mr. Secor and elect his successor; or, second, it does not have such right. Let us consider the first proposition. I was appointed acting Chairman of the Board of Directors by Mr. E. T. Abbott, who was then Chairman, to put the vote on the selection of a new General Manager, Mr. Secor, the old Manager, having sent in his resignation to Mr. Hutchinson. I did so, and the result of that vote on the part of the Board showed six votes for E. T. Abbott, one vote for E. M. Abbott, and one for W. Z. Hutchinson.

I was in doubt whether I could declare this an election or not. I finally turned the matter over to Mr. Abbott who was Chairman of the Board, saying that I thought that E. M. Abbott was intended for E. T. Abbott, and could be so construed as the "intent of the voter." Mr. Abbott then issued a circular letter to the Board declaring an election for himself as General Manager, and at the same time announcing that he had resigned as Chairman of the Board. I was then appointed by him as acting Chairman until a permanent Chairman had been elected.

Subsequent developments showed that the Board was very much dissatisfied with the procedure. The contention was that E. M. Abbott was not E. T. Abbott, and that there were only six votes—not a majority. I was criticised for not declaring the vote myself instead of turning it over to an interested party. In the mean time it developed that the resignation of Mr. Secor had not been accepted either by the Executive Committee or the Board of Directors. Some thought that Mr. Secor should have sent his resignation to the Chairman of the Board. To avoid complication Mr. Secor then sent his resignation to me. This I placed before the Board with the result that every member voted not to accept. It was further contended that because this resignation had not been accepted Secor was legally General Manager at the *very time we were trying to elect his successor*, and that therefore the procedure was irregular and the election void. At the time of submitting this resignation I also stated that an appeal had been made from Mr. Abbott's decision to the effect that he was elected General Manager, and inquired whether that decision should be sustained. To this there were 10 negative votes and one affirmative. I then announced to the Board that Mr. Abbott's decision (or mine, if Mr.

A. prefers to have it so) was overruled, and declared Mr. Secor General Manager.

Let us take the other horn of the dilemma, or the second proposition, viz., the Board did *not* have the power to accept Mr. Secor's resignation and elect his successor. Mr. Secor tendered his resignation the second time to the Board of Directors, and the Board unanimously declined to entertain it. Mr. Secor has notified the Board that he will continue in office till his successor is elected and qualified. This avoids all complications; and if the Board can not fill a vacancy caused by voluntary resignation, then it has done the proper thing by refusing to entertain a resignation it could not accept (if Mr. Abbott is correct), and leave the man in office who was elected at the last *regular* election, when every member of the Association had a chance to vote. If Mr. Abbott's claim is correct, then the only thing that can be done is to leave the matter as it is, and wait till the next general election—only six months away.

My understanding of the matter is that Mr. Secor's resignation is not "before the membership." It has been returned to Mr. Secor marked "not accepted." He has been unanimously requested by the Board, to whom he is responsible and from whom he receives instructions, to fill out his unexpired term, and this he has consented to do.

For the complication that has arisen I do not wish to shift all the blame on Mr. Abbott by any means. Among other things I should have made it my business to see that the resignation of Secor was accepted *before* I called for a vote for his successor, and then I should have declared the vote myself. While it is easy to see what *might* have been done it is not always easy to rectify past mistakes.

To go into all of the details of this would require a good-sized volume, and I forbear. It is a matter of deep regret that Mr. Abbott, an able and capable man, should so persistently go against the Board of Directors. If he had quietly acquiesced in the first place it is my opinion he would have been finally elected General Manager by the Board. I will conclude by saying that this business has been the most disagreeable of any I have undertaken.

E. R. Root,

*Former Acting Chairman of the Board of Directors.*

*Later.*—Reference is made to the effect that a "disgruntled" member from New York advised Mr. Secor not to turn the funds over that were in his hands. I have since written to the person in question, and I have ascertained from him that he did not voluntarily offer any advice; but when Mr. Secor wrote to every member of the Board, including the "disgruntled" member, asking whether he should turn the funds over, this member, as did seven others, making eight in all, advised against it. Mr. Secor, therefore, is not to be blamed for following the advice and instructions of the majority of the Board of Directors.



## NOTES OF TRAVEL.

**The Black Sage of California ; McIntyre's Automatic Water-power Extractor.**

BY E. R. ROOT.

In our last issue I explained that I would give a view of the California black sage, from which most of the so-called white-sage honey of California comes. It very much resembles, as will be seen, the button sage—so much so that there is a possibility that I have confused one for the other. I secured a two-thirds life-sized photo, which, though not very clear, gives a very fair idea of the shape of the plant and of the flower-clusters. This particular specimen

as shown in Fig. 1 has "gone to seed." But there are a few white flowers that stand out from the side of the heads. It will be noticed that the corolla-tubes (or would be if life-size) are quite deep; and it is doubtful whether the average bees, Italians or blacks, could reach the full depth of these tubes. It is, therefore, important that we stretch the tongues of the bees if we possibly can.

Black sage is another example of the fact that some of the best honey-bearing flora are very insignificant in appearance; for, as I have heretofore explained, nature either puts out something very gaudy in the way of a flower to attract insects or else holds out some choice morsels of nectar in little wee insignificant flowers whose color

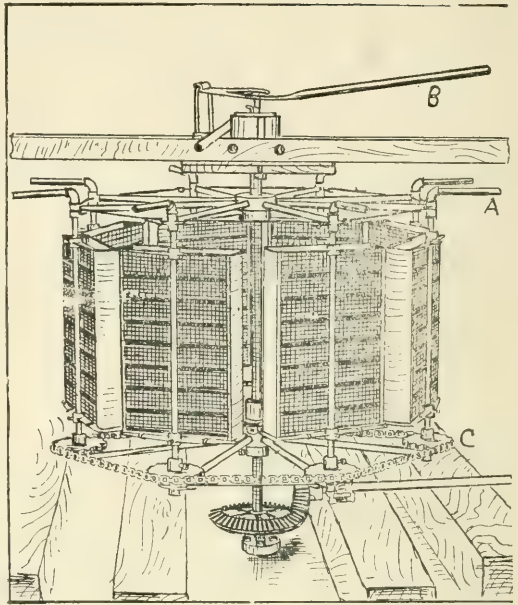


BLACK SAGE OF CALIFORNIA.

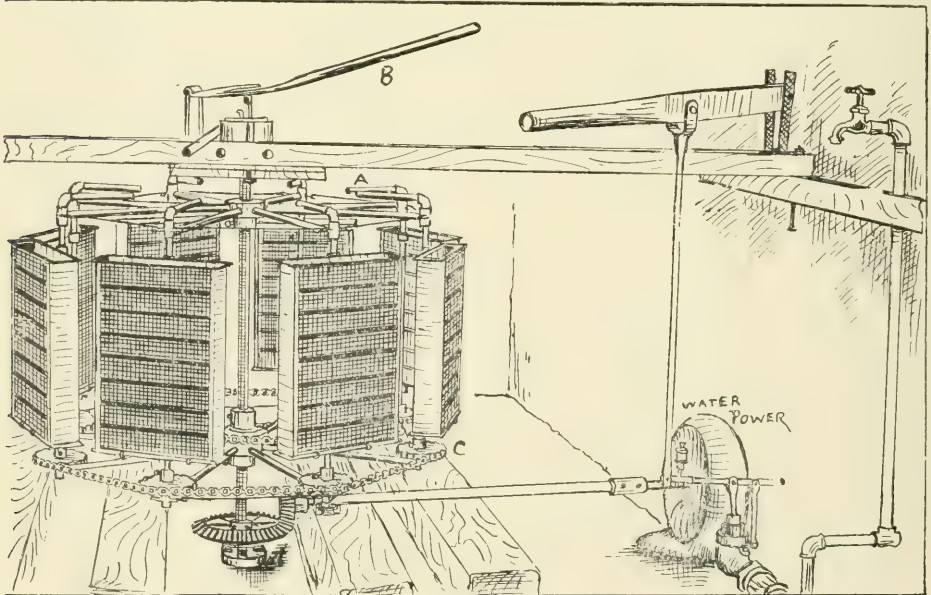
and size are such that no insect, except for the treasure it contains, would ever stop to pay its respects to it. Over and over again, if you examine some of the most celebrated honey-plants, you will find this beautiful balance of nature—a fact announced by some of the best scientists many years ago.

THAT EXTRACTOR THAT REVERSES UNDER FULL SPEED.

These specimens of plants were plucked in the neighborhood of Mr. McIntyre's Sespe apiary. And that reminds me that I wish to say something about the unique extracting-equipment he has at his yard; for I believe it is the most complete and perfect of any thing of the kind in the world. A few years ago we illustrated and described his extractor—one that he invented—and how the same is operated by water power. As we have many new readers I can not do any better than to place it, with some illustrations, in these columns again, for they show very accurately the outfit which I saw, and which was throwing out honey in the most wholesale way imaginable. An inspection of the line cuts shows that the pockets are pivoted on the sides, on a vertical line, and all geared together with chains and sprockets. The average pockets, it will be remembered, are pivoted, or, rather, hinged, like a door, swinging both ways. When the combs are inserted in the extractor, one of the handles at the top, as at A, is revolved so that the baskets are placed *inside* of the shaft on which it revolves. The combs are inserted, water power is put on, and the honey



is thrown out. While the machine is under full motion, lever B is raised up, releasing a catch, which permits the pockets that are now *inside* the center of revolution and out of balance to be thrown by centrifugal force the other side to, or outside of the vertical shafts or center of revolution, so that they stand as in the larger illustration. It is true that, at the moment of reversing, there



M'INTYRE'S WATER-POWER AUTOMATIC REVERSIBLE EXTRACTOR.



is a slight shock, and one would think it would rack the whole machine; but the fact that it has been operating for years without any trouble from breaking down seems to indicate that the principle is not so far wrong. To build an extractor on this plan involves a larger expense than that required by the regular Cowan. It also necessitates a larger can—perhaps 18 inches in diameter—for the same number of pockets. But Mr. McIntyre argues that the work is performed more rapidly, because the extractor does not have to be stopped nor even slowed down.

But I wish to refer particularly to the action of power in throwing out honey from the combs. Mr. McIntyre showed me conclusively that ordinary hand-turning of an extractor could not clean the combs of the beautiful thick mountain-sage honey as clean as can be done where plenty of power is available. In Mr. McIntyre's case he has abundance of water from an irrigating flume some 60 or 75 feet above him. All he has to do is to open a valve to his water-motor, and his extractor will instantly begin its rapid whirr. No one man, nor even two men, by hand power, could ever turn a reel and keep it at the same high rotative speed that was maintained by this motor. Another advantage of power is that one man can do the work of uncapping and extract-

ing; for while he is uncapping the eight or ten combs, as the case may be, he lets the extractor spin. During all this time, as I could see by looking into Mr. McIntyre's machine, a fine spray of honey was being thrown. When the operator is about through uncapping about half the combs necessary to fill the pockets, he slips the lever B, when the machine automatically reverses itself, and the process of slinging honey begins instantly from the other sides. The extractor keeps on whirring while the rest of the combs to complete the set are being uncapped. When the machine is stopped and the combs are taken out they are not exactly dry but they are *clean*.

I came away from the McIntyre apiary satisfied that, in large apiaries, at least in localities such as California, Texas, and Cuba, if one can afford it, power is the thing.

For the purpose of driving the extractor a gasoline-motor would be the cheapest; but it does not allow of a *variable* speed except at great expense. We have, therefore, concluded that a small steam-engine controlled by a throttle, and a small boiler, all things considered, for the average person, would furnish the best power. Water-power, of course, is *the* ideal; but where one is situated as is Mr. McIntyre there will be hundreds who will have to rely on steam.



RESIDENCE OF J. F. MCINTYRE, VENTURA, CAL.

Since the death of Mr. Wilkin, a little over a year ago, the McIntyres have moved to Ventura. The illustration shows their beautiful city residence, and it is safe to say that there is not a more prosperous bee-keeper in all California.

RAMBLE 205.

**The Two Harrys; Learning Spanish; Coggsall's Honey-house; the Honey-flow in Cuba; Hunting Alligators.**

BY RAMBLER.

I knew I should have a real good time with the two Harrys (Harry Howe and Harry Beaver), for you know they are from New York, and all New Yorkers are jolly good fellows.

As before published, Harry Howe has taken to his home one of the fair daughters of Cuba, and proposes to make his residence and his fortune in Cuba; and it is a fact that his residence has a very homelike appearance—much more so than the homes of those bee-men who are baching or are allowing their culinary matters to be conducted by Cuban or colored help. Harry Beaver has this happy example always before him for he boards and lodges under the same roof; and there is no telling when another of Cuba's fair daughters will be keeping house for another "Americano."

Although the two Harrys have separate interests they "exchange work" a good share of the time, and that is a very agreeable feature, especially where one or both are not familiar with the Spanish language. Harry Howe is quite proficient, however, in the language; and all new

comers who are bachelors are advised to do as did Harry Howe—get married; for, by so doing, the learning of the language would be hastened. Any way, we will allow Harry Beaver to work out his own destiny with the fair sex while we proceed to show one of the Coggsall apiaries over which he presides. It is nicely located within a stone's throw of the calzada, a few kilometers west of Artamisa. There is nothing unusual about it except those noble palm-trees in the background, and the palm honey-house. The door to this house had a large hole in it, and it was hung on one hinge, or, rather, tied with a string at the bottom. I had to prop it to make it stay put for the photo. I saw the lightning operators at work here, and they considered the door of such little use that it was left wide open, and hanging by one hinge—string.

Afterward I passed the apiary when the Harrys were not there, and took a photo of the interior. The extractor and wheelbarrow were tipped up sidewise to allow the bees free access for cleaning up things. Those barrels, or bocoys, are ever present in a honey-house in Cuba, and are filled rapidly. I would call attention, also, to the open work at the other end of the house. Now, you must not think that Harry Beaver is at all remiss in his duties. He is not. He follows the instructions of Mr. Coggsall, and he alone is to blame for such an open-work honey-house. Another apiary, further along on the calzada, is supplied with the same sort of honey-house, or more so, if any thing. Now that I feel myself evened up with Coggsall and his sack of fleas I will proceed to say that the Coggsall extractor is used, and this was



COGGSALL'S LOS MANGUS APIARY.



my first experience with it. It certainly has some good features about it. It revolves very easily, and allows the accumu-

quite filled, here they swarm with but little honey in the hive; and, after being hived, they are loath to stay put, and even refuse the blandishments of a comb of larvæ. It is safe to say that hundreds of colonies abscond from the apiaries on the west end of the island.

The two Harrys are trying to solve this problem; and, to keep the bees down to work, Harry H. is after wax, and Harry B. after both wax and honey.

When a colony gets so strong as to show an inclination to swarm, the bees are shaken into an empty hive. In about four days Harry Beaver puts on a super of sections; and at the present writing, May 8, the bees are filling them with honey. I certainly know of several apiaries where, if this shake-out plan had been adopted, the result would have been several thousand dollars' worth of comb honey, where now it is only a waste of swarming.

As will be readily noted by the bee-keeper, a sure increase can be made, and at the same time all objectionable combs can be cut out and rendered into wax. I predict that this shook-swarm plan will be tried more extensively in Cuba in the future.

According to the old adage, "All work and no play makes Jack a dull boy," so the two Harrys find a sort of safety-valve in fishing, and hunting alligators. There are scores of lagoons here that stretch away to the south coast, only about fifteen miles away; and during the rainy season lagoon joins lagoon until they are continuous to the ocean. The Harrys have constructed a little boat; and with a contrary, dilapidated, dejected-looking mule and ditto wagon they haul the boat to the scene of operations. I would also say that the same mule hauls supplies to and from the various apiaries; also cocoanuts. It seems that, every time I called upon the Harrys, their barrels of cocoanuts were as inexhaustible as the widow's cruse of oil. With cocoanuts, ba-



THE HARRYS AND THE COCOANUTS.

lation of 200 or 300 lbs. of honey below the comb-basket. The honey, if not drawn off too rapidly, is quite free from particles of comb, etc.; and as there is no use of being very particular about it the honey can go directly into the bocoy.

As a rule, honey here is more limpid than in California; and the particles of comb, etc., that are in the honey come to the surface quickly; and where the thick honey would need careful straining, this honey will pass without it.

As I stated while with Mr. Somerford, the honey-flow is rapid during the winter months, and the bees accumulate it with no desire to swarm. The queen is crowded down to a mere hand-breadth of brood, and to a decided detriment to the further production of honey. There is not the working force necessary, and one of the problems of Cuban bee-keeping is a manipulation that will keep the hive well filled with a workingforce.

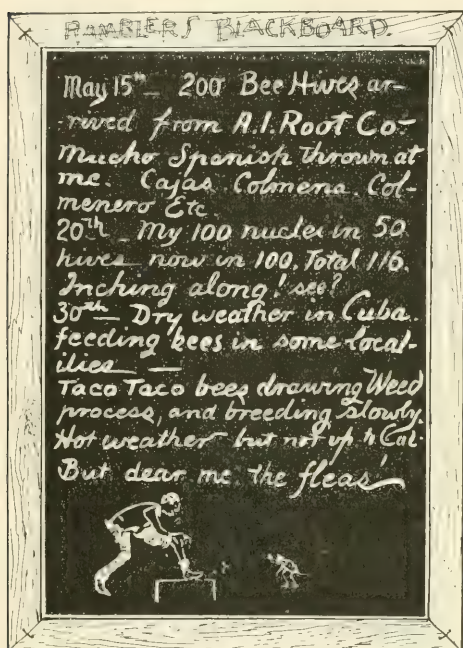
In April, after the main honey-flow, there is another phase and problem. Honey still comes in, but now the queen keeps ahead of the bees; and as the days lengthen, the swarming strengthens. The bees seem to know of the great honey resources around them; and while in the States they delay swarming until their super is nearly or



INSIDE OF PALM HONEY-HOUSE.

nanas, and various other fruits, the Rambler was surfeited.

The two Harrys kindly showed me how they gathered cocoanuts. While one Harry climbed the tree the other tried to hold that mule in position for a photo. The reader will observe that the remarks I made about said mule are no slander.



When in the tree the cocoanuts came down with lightning-like rapidity. Lightning operators in the honey business is a very nice reputation to have, and I grant that Harry Howe carries out the reputation not only with the bees but with the gun, the fish-pole, the wheel, and many other things; but when a person seeks to monopolize the lightning feature in all lines he is liable to accidents.

Let me tell you about a certain species of alligator that Harry Hunt hunted. The ordinary alligator as found in these lagoons is not a very dangerous reptile; but this other species is not only a lightning opera-

tor himself, but he is chain lightning. But, alas! Harry did not realize it. Why! this species, by his quick movements, can make a lagoon foam and boil like soapsuds; and those enormous jaws—well, chain lightning just expresses it. But, alas! Harry did not realize it.

Suffice it to say, I have not words to describe the sad scene, and will leave the matter in the hands of our artist. But, kind and sympathetic reader, shed no tears until we point a moral and adorn a tale in our next.

## A DAILY DIALOGUE.

BY DAVID GRIMES.

"Mornin', friend Grimes."

"Mornin', Bro. Kleinmacher. Whatcher doin' with that long knife?"

"Don't cher know?"

"Naw; whatcher doin'?"

"Wal, my best judgment, after an experience of nigh onter thirty-four months, has taught me that the 'settin' bees ain't sufficient to themselves, so I'm just a caponizing the drones; and, durn 'em, they've got to take care of the brood."

"Wal, I snum! I ain't never heard of no sech thing afore. I guess I'll try it."

"Taint no use unless you've had lots of experience. You see the secret of my success is that I soak up experience day times and then lie awake o'nights so as not to sweat it out—see?"

"But, say; how can you write about so many things as you do?"

"That's easy. You see I just take a lot of the papers; and when I run across something that seems good I use it."

"But don't yer say who writ it?"

"Naw; takes too much time."

"But sposen 'taint so."

"Wal, there's another secret of my success. You see you don't want to be too all-fired specific. It's a sight easier to state things in a general sort of way, and then if any smart Aleck wants to try to pin you down he can't."

"That is a great scheme, sure enough. 'Fore I forget it I want to ask what you think of the scientific stuff some of these new chaps is writin'?"

"Oh! that ain't of much account. You see bees are different from animals. Those chaps think that, just 'cause they know a little science and have got a few bees in their back yard, they can give us fellows points; they can't do it, though."

"But why do you quote from them?"

"Oh! well, that sort of stuff takes just now, so I use it."

"I must be a movin'. 'Bliged to you for your information. I'll try that caponizing trick. Where can I get one of their long knives?"



A LIGHTNING OPERATOR.



"I'll sell you this one. I've got another that'll do 'bout as well."

"Thank you. Mornin', Kleinmacher."

"Mornin', Grimes."

#### A MILLIONAIRE BEE-KEEPER.

##### An Interesting Sketch of Conrad F. Stollmeyer; the Asphalt King of Trinidad.

BY SOJOURNER.

The old gentleman represented in the picture, with a favorite dog by his knee, is one of the latest devotees of apiculture. I say *old* advisedly, since Mr. Stollmeyer is far past the allotted threescore and ten, and is now nearly fourscore and ten. Nevertheless, he is full of energy and vim—so much so as to put to shame many men less than a third of his years. Last year, in the 88th year of his age, our subject took a fancy to bee-keeping; and, being a man of means, proceeded at once to procure the very best appliances and bees that money could buy. It is needless to say the result was satisfactory, for he has already, after the lapse of a few months, put some comb honey on the local market that put to rout the common honey that had hitherto appeared; and, old as he is, he has no intention of let-

ting any one beat him when quality alone is sought for by buyers. This enterprising spirit is quite characteristic of Stollmeyer, since he was the founder of the great asphalt industry of Trinidad, and the furnisher of the raw material from which all the beautiful asphalt streets of American cities are made. For this reason he is sometimes known as the "Asphalt King;" and, were he a few years younger, I have no doubt he would make a bold bid for the place of "Honey King."

As it often happens, Mr. Stollmeyer was laughed at for attempting to create a business in asphalt, and no doubt the sugar-planters of a day gone by thought him a crazy German dreamer, for he was born in Germany, and carries with him the characteristic traits of his race. But now his asphalt paves the streets of all up-to-date American cities. He was also a pioneer in other enterprises calculated to promote the welfare of his adopted country, such as street cars, telephones, and ice-machines, so that Trinidad has in him no mean citizen.

Some of his friends tried to dissuade him from trying bee-keeping; but being a man who has faith in himself he went ahead. Probably they thought he ought to sit down and rest, waiting for the call; but he has been too long in the harness to adopt such



A MILLIONAIRE BEE-KEEPER NEARLY NINETY YEARS OLD, OR THE "ASPHALT KING" AS HE IS BETTER KNOWN.

a course, and he prefers to keep himself busy with an innocent hobby which affords him interest and keeps him from rusting out. And his example might well be emulated by other wealthy men who engage in race-horse breeding and other very expensive hobbies that in themselves have very little to commend them. I believe one of the Vanderbilt family is following a similar course on his estate in North Carolina; also the Duke of Bedford, in England. If more of our wealthy men were to follow in their steps we should hear very little about anarchism. The world owes much to such men; hence I feel sure the bee-keepers of America will very readily extend to Mr. Stollmeyer the right hand of fellowship, hoping he will live a good while yet to enjoy the comforts his bees bring him.

### TEXAS AS A BEE STATE.

#### Beautiful Climate and Bee-ranges; Possibilities of Bee-keeping in the Lone Star State; Chunk Comb Honey.

BY H. H. HYDE.

Since the census report placing Texas in the lead as a honey-producing State, I have noticed the various comments on the matter; and while I too am of the opinion that the census report was unreliable in some respects, I do not think it was far from right in placing Texas in the lead. Texas is a large country, and there is hardly a locality in the State where bees can not be kept with profit. Nearly every progressive farmer will have a few colonies of bees, even if, as is the case in a great many instances, they are in box hives, logs, barrels, etc. Then, too, the number of large bee-keepers, having all the way from 75 to 500 or more colonies, who make bee-keeping their main dependence, must be taken into account.

Again, Texas is a country where bees are almost certain to make a crop of honey, complete failures being entirely unknown, while the average may be all the way up from 25 lbs. in some localities, for poor seasons, to 150 to 200 lbs. in good localities for good seasons.

Another very important factor to be taken into consideration in looking the matter over is the fact that very little of the Texas product finds its way out to the Northern States. We have a good demand in Texas and in the Territories, which now consume practically all the honey produced here. A very important factor in this home consumption is the fact that the bee-keepers of Texas have learned to give the consumers a staple product without the slightest suspicion of adulteration in our product, bulk comb honey. This product can be produced more cheaply, and in larger quantities, than can section honey, and is cased and shipped cheaper than is section honey; besides, there are no losses from breakage or dishonest commission men. The Texas man of moderate means can easily afford

for his family comb honey, when he can get it in full weights at a cheaper price than section honey sells for, and hence the satisfactory market the Texas bee-keepers have, you might say, at their very doors. All in all, Texas is a desirable place to keep bees, and the best part of Texas is what is known as the Southwest, or that part of the State lying between Mexico and the Gulf.

Texas bee-keeping is booming by reason of good average crops and good markets, besides a warm and equable climate in which to live. I expect to see the day when all this vast country will be filled up, and when Texas will produce as much honey as any other three or four States together. Our honey-producing flora is partly plant growth, but more largely shrub growth. Agriculture is encroaching on the honey-plants very slowly; and as we do not have to depend on irrigation, neither do we need much rain. I believe Texas holds out inducements ahead of all other States to the man who expects to make bee-keeping his lifetime pursuit.

For the Texas honey-producer, strains of bees that have great prolificness are very desirable, and, in fact, essential to the best success. Our flows come all along from April 20 to July 15, with an occasional fall flow coming in the latter part of August.

It is easy to see that, for four months of the year, beginning Feb. 1, the bee-keeper desires bees that will keep their hive full of bees and brood; and any weakening on the part of the bees or brood will materially curtail his honey crop. For this reason Holy Land, Cyprian, and Carniolan bees are coming more and more into favor, with the chances of the Cyprians coming out ahead, as they seem to have all the vigor and vitality of the Italians, with greater prolificness added. I am personally introducing all three strains into our apiaries largely. While I admire the Carniolans for their gentleness and prolificness, yet I fear their swarming propensities will make against them. Italians, and especially the goldens, are fast being superseded by the more prolific strains. This matter of stock seems to be entirely a matter of locality, for I can readily understand that the Northern bee-keeper, having one main flow, would find these prolific strains of bees exceedingly unsatisfactory.

Floresville, Texas, June 10.

[I believe that all Mr. Hyde says is true, from the cursory examination I made while going through his State. It is a fact that there is not a suspicion of adulteration there, or I did not hear of it; and for that reason Texas is largely a consumer of its own product. There is little or no foul brood; and while it is pretty warm in some of the southern counties, yet, if I am correct, delightful breezes from the Gulf make it very endurable, even to a Northerner. I remember that, while in San Antonio and El Paso, it was very warm, for it was



about the first of June; but the ever present Gulf breeze was decidedly refreshing toward night.

There is hardly a State in the whole Union for which there is a greater future for bees than Texas. I say this after having visited nearly every State in the Union, and studied the conditions as they existed. But no one should go to Texas, or any State, without first making careful inquiry, then going and making a personal visit, and looking the ground over; and no bee-keeper, I hope, will ever locate on or within range of another. But I am sorry to say there are bee-keepers who, because there is no law to protect the old resident, have gone in, in some localities in the West, and simply divided the profits in the field discovered by another, and which was rightly the field of the first occupant.—ED.]

### SHALLOW HIVES

#### And Divisible Brood-chambers.

BY W. K. MORRISON.

Reference has been made in GLEANINGS to the use of shallow-chambered hives, and several writers seem disposed to condemn them. A good many seem to labor under the impression that, if shallow hives are used, they must be managed on the Heddon plan, and herein lies the difficulty that has confronted not a few who have been disposed to try these things. I have tried the Heddon plan, and my experience leads me to say that a brood-chamber in one compartment is infinitely preferable to one combined in two chambers. In the latter case the work of handling the brood-chamber is considerably increased, with no compensating advantages. The case, however, is far different if the brood-chamber is large enough to contain an ordinary colony of bees, say the equivalent of seven or eight Langstroth frames. To arrive at a fair understanding of what the proper size is, we must do some calculating, prefacing this with the observation that the ordinary thick-top-bar L. frame contains eight inches depth of comb.

8 frames 8 in. deep=64.

10 " 6 in. " =60.

The above calculation seems to indicate that the shallow hive is  $\frac{1}{5}$  smaller than the ordinary eight-frame hive. In actual practice, however, there is really no difference in capacity. There is always a considerable amount of honey in the deeper brood-chamber, and little or none in the shallower—I mean in the working season; and in practical experience there are as many bees in one hive as the other. And when it comes to getting the surplus honey in sections the shallow hive leaves its rival hopelessly behind, and this without the use of baits or any other of the devices usually practiced. In most places the bees will start work in the shallow hive two weeks sooner; and in the tropics, bees are not inclined at all to work in sections above a deep frame. Rambler

remarks that this is due to the cool evenings of the tropics. Rather it is due to the long, steady, easy honey-flow which inclines the bees to store the honey just in the cells where the brood hatches, leaving the super untouched.

Shallow hives—6 inches and under—require different management altogether from the deeper sorts. For example, it is better to use drawn combs than starters in giving a swarm. There is no trouble in getting the bees into the sections when combs are used, and it insures no *pollen in the sections*. Such a colony makes very rapid progress. There is no dwindling, as in the case of a swarm hived on starters.

The section-super in the case of an older colony should be placed on the hive earlier in the season than is the case with ordinary hives.

If rightly handled, three Ideal supers make a very good hive, hard to beat, at least in the hotter regions of the earth. During the off season the colony is kept in a shallow extracting-super fitted with shallow frames, which, for convenience' sake, I term the Ideal. When the honey season approaches, another Ideal super with combs is added, and the queen is allowed to lay therein if so disposed, which is generally the case. As the season advances, the bees will store honey in the upper chamber. When it is nearly full it is raised, and a super of sections placed under it. The colony being large, and their brood-chamber so shallow, the sections are worked out and finished with celerity, and every comb-honey man knows that this means nice full sections. For the tropics this is an excellent plan, and, so far as I can see, would suit northern countries almost equally well, particularly in poor honey districts.

Another point that must be observed when shallow hives are used, no matter what kind, is this: Full sheets of foundation must be used in the sections, otherwise there is trouble. The best hive of all, in my opinion, is one of 12 shallow frames, with six-inch combs—body  $6\frac{3}{8}$  inches. Such a hive presents great opportunities to the comb-honey specialist. With such a hive, 48 or 50 sections can be placed on the hive at once, which is a good deal easier than putting on two of 24 sections each. The frames are the same as used in shallow extracting-supers, but *one inch deeper*. Two fence separators are used in the brood-chamber to facilitate work on the outside combs, in which case the sections are all worked out. This makes a cheap hive, and, for the beginner, easy to understand. The specialist will see that it suits him just as well. For Rambler in Cuba I think it will be just the thing. He, as well as the rest of us, will vote for handhole cleats on supers as well as brood-chambers, in which case this hive will be hard to beat.

This hive can also be made up of 6×6-in. sections, and will be found to be useful to queen-breeders, those who move their bees much, and those who wish to ship bees long

distances. The sections should be an inch in width, and arranged within a T super. The bees thrive as readily in this sort of hive as they do in others. Of course, it gives great control over the bees. In this short letter there is no room to elaborate on management. I leave this to the future.

[Your ideas, and those of Mr. Francis Danzenbaker, so far as depth of a brood-chamber is concerned, are very close together; and the experience of many is showing that a moderately shallow hive in *one* brood-chamber is better for comb honey than some of the hives of standard Langstroth depth.—ED.]

### QUEEN-REARING.

#### Cell-dipping.

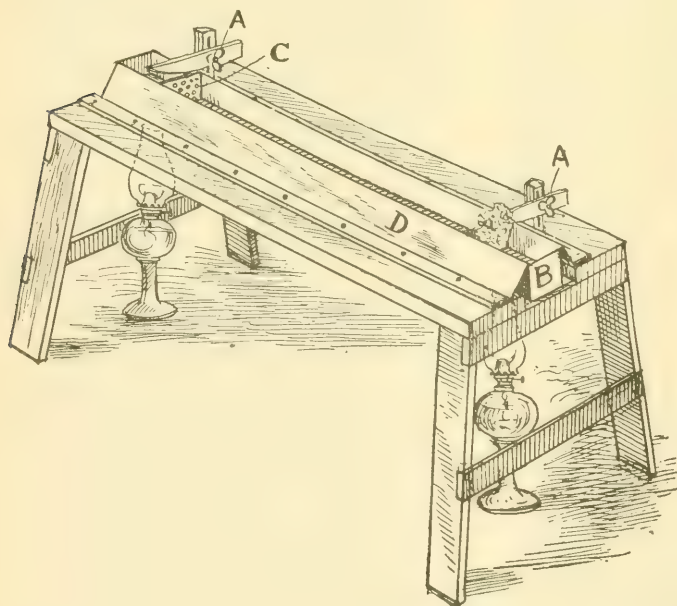
BY W. H. PRIDGEN.

While just as good queens can be reared by allowing the bees to construct their own cells from Alley strips as when artificial cups are used, many advantages present themselves in the use of dipped cups over strips of comb or any form of receptacle otherwise constructed to which the larva is transferred. Besides, the dipping of the cups is no longer an objectionable feature, as one properly equipped, which can be

The illustrations given make plain a set of reversible sticks that are made fast by inserting plugs, B B, which enables one to make the cups with a natural base for the transfer of larvæ only, or those with pointed base to receive a cocoon when transferring larva, cradle, and all, with the same set. The natural base, however, has no advantage whatever over the pointed base, regardless of the manner of transferring, as the larva is floated out of the small sink long before it is large enough to fill it, and therefore the sticks can be as securely fixed as the teeth in a rake, and make all on pointed sticks. The dipping-sticks should be about  $\frac{1}{8}$  inch in diameter. Mr. Doolittle says, rather more than less. At any rate,  $\frac{5}{16}$  is not far from the correct size. The tapering part should be  $\frac{5}{8}$  inch long, reduced rapidly for the first  $\frac{1}{2}$  of an inch, forming the shoulder, and until reduced to nearly the size of a worker cell, and then slightly tapered to the end. It should slip into a worker cell  $\frac{1}{8}$  inch before filling or enlarging it, and then slightly stretch it by the time the bulging part is reached.

Thus formed, a sink is made in the wax cup that will bear sufficient pressure, when the cocoon is inserted, to make it fit smoothly without touching the bottom of the sink, and, consequently, destroying the natural shape of the cocoon. The sticks can be fixed in the bar any desired distance apart for the convenient removal of the cups, about  $\frac{3}{4}$  of an inch from center to center being about right. With this description and the illustration any successful queen-raiser can make them, and we will now consider the construction of the wax (or dipping) tank. This tank, B, should be 2 in. deep and wide, and 18 or 20 long, with flanges, D, to be nailed to the table, leaving the tanks suspended by the flanges, which also serve the purpose of holding the heat to the sides of the tank, and letting it out at the ends, thus making the heat more uniform. In the bottom of the tank is fitted a strip of perforated tin, C, with the ends turned up immediately under the gauges. Any tinker can make it in a few minutes.

The table should be about 12 inches wide, the top being made of two boards, with the tank suspended between them, by placing thin strips of wood on the edges of the tin flanges and nailing them down, while the height should be according to the wishes of the operator, conveniently seated, say 18 or 20 inches. The gauges are made fast to



done at a small cost, can dip enough in a few hours to last a whole season. If only a few cups are needed they may be dipped by using a single dipping-stick and dipping a single cup at a time; but this is too slow for a busy man when there are many to be dipped, and we will turn our attention to more advanced methods.

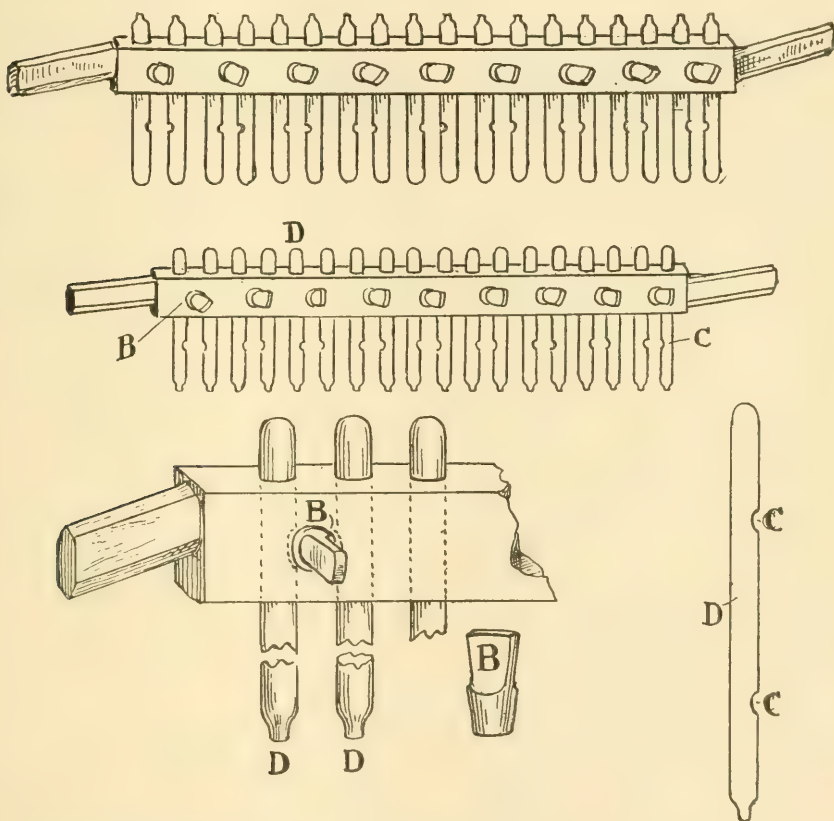


the posts by thumb-screws, A A, and can be slid up and down, or the points of the gauges over the tank can be tipped up and down to regulate the depth of the dip to the quantity of wax in the tank.

The lamps should be in the position shown while one is dipping cups, and then add lumps of wax over them as the melted wax is used out between the gauges and perforated tin, the object of the tin being to hold the lumps of wax out of the way while dipping, and thus enable one to keep the supply the same all the time, and obviate the necessity of changing the position of the gauges from time to time by the adding of wax as often as it is necessary.

#### POINTS ON DIPPING.

The bottom of the wax-tank should be covered with water to prevent burning the wax, which also serves as a regulator, as bubbling indicates too much heat, and the flames of the lamps should be regulated accordingly. In fact, for best results the temperature of the wax should be kept but little above the melting-point, the pieces of wax to be added over the lamps as the liquid is used out without its interfering with the progress of the work, and thus causing it to melt without raising the temperature elsewhere, and serves the purpose of keeping the depth of dip regulated without having to adjust continually the gauges as has



In starting up, the lamps should be adjusted near the center of the tank until the wax at that point is melted.

This completes the description of a queen-cup dipping-outfit except that we want a water-tank or some convenient arrangement for wetting the dipping or forming sticks for about one inch from the points up, after each batch of cups is removed, as well as in which to soak them thoroughly before beginning; also a wet board placed on the table next to the operator, on which to place the cups to give them a desired large flat base or goblet shape.

before been explained. The bevels at both ends of the stick-holder incline the same way, which admits of varying the depth of each alternate dip by an endwise movement, and still use the gauges as a rest, so as to dip the pegs from end to end alike.

Make two dips in rapid succession, the full depth, which should be nearly  $\frac{3}{8}$  inch; touch the points to the melted wax, to remove the adhering drops; and immediately place them on the wet board, to remain until the wax sets. This board should be thoroughly soaked before using, and then kept quite wet by either occasionally plung-

ing it into water or else touching the dipping-sticks to it every time they are taken from the water; then dip them about half way up and set them on the board as before, to be repeated until the base is nearly as heavy as desired, and the goblet shape formed. At this stage the cups should be dipped full depth again and set on the board, first shaking the drops of wax off if the bases are large enough, or failing to shake them off if the size of base is to be increased, and repeat until the cups are as heavy as desired. The main body of the cups should be made heavy enough at first to prevent the water that can not be shaken from the sticks from bursting through and causing water-bubbles, or knots, on them, by the contraction of the wax in cooling; then increase the weight of the base, as that part has to remain longer in the wax, and is inclined to melt off, although the dipping should be done quickly, while the last dip or dips should be nearly full depth to make the cups smooth outside, and also to warm the cups up so that they will slip off the pegs easily. The cooling of the main body, while the base is being formed, stretches the cups somewhat; and then when again warmed up the expansion makes them fit more loosely than if kept warm continually. When completed, touch the bases to the water used to wet the dipping-sticks, but not deeper than the necks. This is done to harden the bases so as to be able to remove the cups from the sticks while the main body is yet warm. If allowed to contract much they fit the pegs too tightly for easy removal, and for this reason the dipping should be done during warm weather, or in a warm room.

A little honey or syrup added to the water in which the forming sticks or pegs are dipped after the removal of each batch of cups assists very much in their easy removal.

After the sticks are used until they become somewhat glazed, and the water is inclined to stand on them in drops, the points should be dipped for a few minutes into boiling water, or cleaned with potash. Cedar is the best wood to make the sticks of, as it is less inclined to swell when wet, and, consequently, forms the cups of a uniform size.



#### SHIPPING BEES WITH HORSES AND HOUSEHOLD GOODS IN A CAR.

As I have got to move about 100 colonies of bees 300 miles by rail, and never had any experience in moving bees in a car, I should like to have you give what information you can. I wish to put household goods and horses in the car. Can it be made safe if

one is very careful and keeps watch of them all the time? How much room should the bees have, to move with the least loss? How high may the hives be tiered up, and ride safely? When would it be best to move them—in the fall or spring? How should the hives be fastened in place? If the bees are partitioned off in one end of the car, will the end door give ventilation enough? Will the Van Deussen hive-clamp hold the bottom-boards securely? How much stores are they likely to use up?

A. T. DOCKHAM.

Bricelyn, Minn., June 2.

[I should say it would be a little risky moving bees in the same car with horses. However, it can be done safely enough if there are not too many colonies, and reasonable intelligent care is used. The hives should be loaded upon four or five inches of straw, and straw should be packed down between for the purpose of forming a cushion to break the shock when the cars bump together.

The frames should all be made fast, of course. If they are the Langstroth unspaced frames, strips of wood about half an inch thick should be shoved between them, and the last frames (or those next to the hive side) should be wedged firmly against the others. If the frames are the Hoffman self-spacing, no such fastening will be necessary.

The whole top of the hive should be covered with wire cloth, which should be raised about two inches above the frames by means of a rim of the same width and length as the hive.

I would not depend on the Van Deussen hive-fasteners. I would use wire nails. As an additional precaution I would nail strips of wood from the rim that supports the wire cloth down to the bottom-board. Four such strips should be nailed at each corner, and the whole should be put together so it will be impossible for the bees to escape.

It may be advisable to put sponges of water on the wire-cloth covers to give the bees a drink.—ED.]

#### MARKINGS OF DRONES NOT A CRITERION ON WHICH TO BASE PURITY OF STOCK.

Why is it that half the drones of an Italian queen (from The Root Co.) are black, while I have some other queens, not pure Italians, as many if not more of whose drones are yellow. Is the first-named queen not pure? She was untested. MRS. E. PRIESTIN.

Davisville, Cal.

[The drones from pure Italian queens vary greatly in their markings; and especially is this true of those from leather-colored or imported stock. Some drones from some of our very best imported queens, having perfectly marked bees, would be almost jet black; and yet I have seen drones from dark hybrids, a cross between blacks and Italians, very bright-colored, with beautiful yellow bands. It should be



understood, then, that the markings of the drones are not to be considered in any sense as indicative of the purity of the mother from which they came. Even pure Italian queens vary all the way from a bright yellow to a jet black. One of the best imported queens we ever had, and one that produced gentle three-banded Italians, was as black as any black queen I ever saw. The only markings on which we can base an estimate of purity are those on the *worker*-bees themselves.—ED.]

#### QUEENS WHOSE BEES WILL WINTER.

Let me give you a little circumstance in last year's wintering. I had two colonies side by side. We will call them A and B. I bought a queen of a breeder who deals in yellow stock, and gave it to A. It was a little stronger than B, but both were good colonies. The premium queen from Victor you gave me I gave to B. Side by side they wintered, same treatment, and to-day B is working in super, while A is a mere handful of bees. I purchased a queen of Mr. Victor, and introduced her to a small nucleus. They were light bees in the fall, but wintered well. Any bees will make some honey in summer; but there are no bees which will make honey if they don't winter. Why don't some one select queens that winter well, instead of for color and tongues? G. A. BOSTWICK.

Verbank Village, N. Y., June 6.

[To get good wintering qualities is one of the points that all queen-breeders should take into consideration in their breeding-stock. The bees of that valuable queen that we lost, which was four years old, and going on five, were not only good honey-gatherers but excellent for wintering. They invariably came out strong and vigorous. Indeed, the bees could hardly be good workers without being also good winterers.—ED.]

#### APIS MELLIFICA AND APIUM VIRUM AND THEIR USE.

GLEANINGS for May 1 contains an article treating on the poison of bee-sting, *Apis Mellifica*, as a specific for rheumatism. Much has been said during the past twenty years, in which I have been interested in bee-keeping, about this remedy for rheumatism; and the article referred to above says "GLEANINGS says that the poison of *Apis mellifica* is used largely in homeopathic practice." It is used entirely by the homeopathic profession, not to cure rheumatism alone, but many are the sufferings which it relieves when given after thorough preparation, and according to the law promulgated by Hahneman—*Similia similibus curantur*. *Apis mellifica* is made from the honey-bee, and this preparation is the one most used by the homeopathic physician.

Apium virus is simply the clear poison of the honey-bee triturated. There is no fountain of youth, neither is there a "balm in

Gilead"—a cure-all or a specific which cures every ill or the same disorder or disease in every person. *Apis mellifica* cures rheumatism when the particular case is homeopathic or as indicated. Quinine cures the "shakes" when, and only when, that particular case presents symptoms produced by quinine when given repeatedly to the healthy individual. The heroic administration of *apis virum* by the business end of a honey-bee may be pleasing enough to some people to induce them to place a quart or so of bees in their trousers, but surely their faith must be "screwed to the sticking-point." V. E. FREEMAN, M. D.

Chicago, Ill.

#### KNAPSACK BEE-SMOKER, OR COMPRESSED-AIR BEE-SMOKERS.

*Friend Ernest*.—In Stray Straws the doctor and you were talking about that knapsack smoker. Now, if you two were to talk about an automatic smoker it probably would be in order. These spraying-machines are filled with compressed air, which forces the spray. Why not set a smoker on top of one, with hose leading from nozzle, with tap? The machine could stand on the ground beside the hive, and could be filled; then the blast could be regulated the same as the flow of spray, at the will of the operator. These spraying-machines appear to hold sufficient pressure to last quite a while. The tank could be smaller than those on sprayers, as they would need storage for compressed air only. It appears to me that one filling would do for the operation of a hive at least. J. P. BLUNK.

Moorland, Ia., June 9.

[I once thought that a compressed-air receiver in connection with a bee-smoker might be used to advantage under some circumstances. But a receiver sufficiently large to hold air under pressure would be rather heavy and bulky—not less than a foot in diameter, and two feet long. This would have to be strapped across the back in order to be used, and the smoker would have to be carried constantly, as it could not be set down when not in use.

While, as you say, one pumping-up might last a considerable length of time, yet it is no easy task to do the pumping. Just imagine, for instance, pumping air into a receiver that had about ten times the capacity of a *bicycle-tire*! I think you will conclude, as I have done, that the slight advantage to be gained would hardly be compensated by the amount of labor, extra expense, and extra weight to be lugged around. In the case of spraying-outfits it is necessary to have a *constant* stream in order to direct the liquids to the point desired; but a steady stream in the case of a smoker is not necessary, and usually a little puff or two at the utmost, for the average colony, is sufficient to accomplish nine-tenths of the work in the apiary. A common bellows adds but very slightly to the weight of a smoker, and will respond instantly.—ED.]

## CARBON BISULPHIDE AND ITS USES IN KILLING BEE-MOTH.

To what extent is carbon bisulphide being used for wax-worms in comb honey? Is it preferable to sulphur? In a box made as nearly air-tight as possible, and to hold 100 lbs. of honey, give length of time and directions for treatment. Are not the fumes of carbon bisulphide, when inhaled, poisonous to people? and is there not considerable danger from this source?

CLARENCE T. COLE.

Solsville, N. Y., June 14.

[The use of carbon bisulphide is comparatively new in bee culture, for it is only during the last two or three years that it has received any attention whatever in the bee journals. At the last National convention in Buffalo it was up for extended discussion, during which several leading beekeepers, including Prof. Frank Benton, of the Department of Agriculture; Sec. A. B. Mason, and several others testified to the effectiveness of the drug for killing the moth-worm, and even moth-eggs, in combs. Experience has shown that a good sulphuring will not always kill the moth-worms—the big hearty fat ones that wiggle around so disgustingly—nor the eggs. But it was shown at Buffalo that the bisulphide, when *properly applied*, is much more effective, and is far less trouble.

Perhaps the best way of using it is to put the wormy combs, spaced about an inch apart, in a series of five or six hive-bodies. These should be stacked up one above the other, on a tight bottom-board. On top of the upper set of combs (never under) should be placed a saucerful of the bisulphide, and, over all, a super or cover that fits tight. As the fumes of the drug are considerably heavier than air, they will gradually descend all through and among the combs, killing every worm and even the eggs, so it is said.

We have had no wormy combs in our apiary for so many years that we have had no opportunity to test this new agent; but when good reliable men testify to its effectiveness as compared with brimstoning, I think we may safely conclude that it is all right. Of course, the combs can be "bisulphided" in a room if the door is shut tight; but a much larger quantity of the drug would have to be used in that case.

But the most serious objection to using it inside of a building is its awful explosiveness. I have taken a teaspoonful of it and poured it into a little dish, and lighted a match and threw it into the dish at a distance of six feet. While there was no distinct bang, like the crack of a gun, it gives an awful puff; and from the way it "went off" I should conclude that a saucerful of it evaporated in a closed room 8×10 would wreck it completely. It is, therefore, very necessary that it be used outdoors or in some inclosure where no great damage will be done in case of an explosion.

I once used bisulphide of carbon myself

inside of an inclosed room of a church to kill wasps and hornets that had come in over the window and established their headquarters. At that time, for the purpose of experiment, I inhaled the fumes of it; and, while it made me feel slightly dizzy, I should not be at all afraid of handling it under ordinary circumstances—not even indoors—that is, providing I could feel sure that no fire were present.

It is well, however, to *avoid* inhaling the gas, as I am told it is liable to cause headache as well as dizziness.

Bisulphide of carbon can be obtained at drugstores in self-sealing tin cans retailing anywhere from 25 to 50 cents. The 25-cent package will take care of several hundred combs.—ED.]

## THAT TOBACCO QUESTION.

*Friend Ernest Root:*—As much as I value what your father has written on the tobacco question from time to time, I think what you have said on page 509 is the best thing I ever saw on the subject; that is, it is the most practical argument against the use of tobacco, which is expensive and unnecessary. My sentiments in regard to the use of it are exactly in line with yours, and I am happy to say that my only son, who is now 21 years of age, is firmly established on the right road—the road of clean habits and thrift. I know full well that the danger period in reference to these bad and expensive habits is in early boyhood. My boy has passed the danger period unscathed, and I have no fears for your boy after reading what you said. I think sometimes that a boy is the most cruel of all masters. He will thoughtlessly and ruthlessly bind heavy burdens on his future manhood that must be borne to the grave.

The aches, the pains, the sad regrets,  
The heavy chains of habit borne,  
Are but the debt that must be paid  
To selfish childhood's youthful scorn.

June 23.

HARRY LATHROP.

## COCKROACHES—HOW TO GET RID OF THEM.

What do you do when hives are troubled with cockroaches? They will run down among the bees and hide, and it is almost impossible to destroy them. If many, they eat the honey as fast as the bees bring it in.

W. W. COZART.

Dutchville, N. C., May 31.

[I have never heard that cockroaches did any serious damage, although I supposed they were quite annoying at times. Perhaps some of our friends who are located in the South will be able to tell how these bee-enemies can be disposed of.—ED.]

## BLOOD WILL TELL.

I have a queen from J. P. Moore that I got in June, 1901, and put her on four frames of hatching brood when she arrived. She built up a strong colony, and it gave the best yield of extracted honey from the



fall flow of any of my eleven colonies. Her bees gave me 40 lbs. of extracted honey, and I did not touch the brood-nest, but left it full of honey. Mr. Moore said she was a daughter of a red-clover queen he got from you. I shall requene with her daughters this year.

D. E. ANDREWS.

Bloomington, Ind., May 31.

[The mother of this stock was the red-clover queen that was killed by spraying poison.—Ed.]

#### DARK VERSUS BRIGHT YELLOW.

My leather-colored bees have made me over 100 lbs. of section honey. My golden Italians are doing good work, but can't stay with the other strain of bees. My leather-colored bees cap their honey white and that makes it look nice.

H. C. TRIESCH, JR.

Dyer, Ark., June 3.



DOCTORING WITHOUT MEDICINE. ALSO  
SOMETHING INCIDENTALLY IN RE-  
GARD TO POTATO-GROWING IN  
NORTHERN MICHIGAN.

There! it just occurs to me that I should have put the potato business first and the "doctoring" last, but I insist, however, that the latter is the more important, even if it does occupy only a few lines at the end of my story; so, "here goes."

I came here and am here to grow potatoes and to get strong and well. There I am, once more, with the cart before the horse; but I think we will drive on, any way, for we *must* "get a going." That is just what I said to the boys when the middle of June came along and our biggest field was not yet ready to plant. Oh, yes! we have had potatoes up and looking beautiful ever since along in April, and I have been fitting new ground and planting almost every day. In fact, we have beautiful new Early Michigans, as big as hen's eggs, *now* this 24th day of June; and the thrifty luxuriant hills all round our "cabin" are now pushing the soft mellow ground up because of their luscious treasures underneath. Yes, "luscious" is the word; for the potatoes grown here, as Mrs. Root cooks them, prompt me to thank God for them as often as I do the strawberries, or oftener, for we have the former the year round.

Well, I told the boys that big field must be *pushed*. We don't own any horses up here, but depend on hiring, and everybody this spring seems "rushed" like ourselves. Who wouldn't be, with the prices they have been getting for a year past? Well, our ground was finally ready to drag as soon as the stones were picked off. I was al-

most tempted to let the stones lie until after planting, but they would very much interfere with dragging and planting both; and, besides, I had a chance to get one horse, but couldn't get *two*, that day. We had, the day before, been over the field and pitched the stones in small heaps a rod or two apart. I objected to this, because it made twice handling; but my boys said it was the way the best farmers up here did. I don't like to borrow tools, even a stoneboat; so I had the carpenter who built our barn—haven't I told you before we have a nice little barn? Well, we have, and it is a Shawver "plank-frame." Shawver named it "Our barn in the woods," companion to the "cabin in the woods"—see? The barn cost ever so much more money than the cabin; but it is neat, handy, and pretty. I am going to give you a photo of it soon; but we were talking about stoneboats. Now, this carpenter made me a very pretty light stoneboat; and he made the place to fasten the chain at the *back end*. I thought at first this was so we could "back up;" but who ever heard of backing up a stoneboat? He explained:

"Mr. Root, you thought this stoneboat pretty light, and so it is, if you should try to hitch the chain on the front end; but the better way is to hitch to the last board on the back end, pass your chain up under the boat, and then up through the front board, and your boat won't be pulling to pieces, even if it is light."

Isn't that a bright idea? Make one on that plan, and see if you don't consider the *idea* worth what GLEANINGS costs a whole year. You can make it so light, and do it safely, that it can be used to pull your plow and harrow in out of the wet, move barrels of potatoes, or any thing else, all over the farm, and yet it *can't* pull to pieces, for the *chain* takes all the strain.

Well, we got our horse on the light stoneboat; but as we could have the horse only *one day*, I went along to see if I couldn't invent some short cuts. First, the boys would stop the boat so far from the stonepile it took unnecessary time to load. They gave, as an excuse, that the stones were scattering, being pitched together; and if they went too close, some would be covered by the boat. I went ahead and cleared the scattering stones from one side; then we drove up quite close, and three of us moved the stones just over the side of the boat very quickly. Next I found that the boy who drove the horse generally threw on the last few stones. I stopped this by telling him to pick up his lines and start his horse while myself and the *other* boy put the last stones on the boat, sometimes when it had even commenced to move. This made a big difference, but it didn't give the boys any time to "tell stories." It wasn't hard on the *horse*, because he stood still all the time we were loading and unloading, any way; but I will own up the boys *did* get pretty tired, all *three* (?) of them. Then I discovered that this light boat could be *turned*

over by all three of us. When it held a pretty good lot of stones I directed we should throw off half of them, and then dump the rest on the stone pile. As it is slow work picking up stones the size of hen's eggs, or a little larger, I directed these should all be left to dump, taking off only the larger ones, until we could lift the boat to turn it over. Well, in this way we finished by noon what would have perhaps taken all day with a common heavy stoneboat, and one horse did the work of two.\* I worked until dinner time without any nap, and really didn't feel the need of any. I thought it prudent, however, to take a half-hour rest after dinner, in order that I might not "play out" before supper time.

For some years I have carefully avoided any thing like heavy lifting, because I supposed my days of heavy work were about over; but since I have been out here in the woods I have been "happily surprised" to learn not only that my strength is increasing day by day, but that I rather like the fun of lifting and carrying heavy weights—something I have dreaded and avoided almost all my life.

Around here the main planting of potatoes is from the 15th to the 20th of June. In order to keep them in good order so late they must be removed from the cellars or pits, and spread out on the barn floor, to stop sprouting. My barn was built for shelter for our farming-tools, and also that I might have a suitable place thus to spread out my 75 bushels of various kinds of choice potatoes I expected to plant. I haven't as yet learned to be an expert with the little hand planter I have said so much about; but my boys have learned the art, and I decided the best thing I could do to push the work along was to cut the potatoes and wheel them with the Daisy wheelbarrow from the barn to the field. It is downhill all the way, and I found I could take a pretty fair load in the hard-beaten road; but when I got into the soft mellow ground of the field it wasn't so easy. Many would say we should have a horse for such work; but we haven't one, and I don't want the potatoes out in the field any faster than the boys plant them. I want to boss the whole job, too, to be sure there is no mixing of varieties by mistake or otherwise. In growing choice potatoes for seed for the past twenty years or more I have had some experiences I don't mean to have again. If I cut the potatoes, and wheeled them to the planters,

I could be sure every thing was done just right. Whenever we change from one variety to another we put in a row of Red Triumphs. Anybody can tell these at a glance in digging.

After all this preface, dear friends, I am now ready to tell you of one of my most valued "happy surprises." When I first began wheeling potatoes, a wheelbarrowful would throw me over unless I was very careful. I did not seem to have weight (about 120 lbs.) to keep the equilibrium. I supposed this could not well be helped, and that I would have to take lighter loads. I soon found, however, that a wheelbarrow is a good deal like a horse or colt, if you choose. One has to get acquainted with it, and know its ways. I kept taking a little larger loads, and then a little larger still. It was pretty hard and tiresome work at first; but as I had time to rest while cutting them, I got on pretty well. Of course, I might ask one of the stout boys to wheel it for me; but that would stop the work. I thought I would try to stand it until this job was done, and then let some one younger do the heavy lifting. Well, before I knew it I actually began to enjoy wheeling these heavy loads. In fact, I would rather do it than sit down and cut potatoes. Of course, it gave me an appetite. Why, to-night after supper I felt as if I would rather wheel more big loads of potatoes than to sit down and read the papers; and, just for the fun of it, I picked up the heavy spring-tooth harrow (half at a time), and carried it into the barn, because the barometer indicated rain. You say I will hurt myself by overlifting. Not a bit of it. My back that used to be always ailing is now as sound and tough as a pine knot. There isn't any "crick" nor any thing *weak* about it. I read somewhere a few days ago that, unless exercise be taken in something the person is interested in, it does little or no good. This may be true; but I think one can, if he tries, get interested in some work round about him.

The special point in the foregoing is this: One may, by taking it gradual—that is, increasing the load little by little—learn to enjoy developing the muscles that are used in heavy lifting.

Perhaps I had better add that I am now out of doors all day long, and sometimes looking after and petting my plants until almost dark. When I am tired my naps are taken in a little grove on the hill overlooking Traverse Bay. I have learned to consider the hammock one of my greatest enjoyments when wearied by heavy work; and the lake breezes are so cool here that I almost always need a blanket. Even our cabin is so well ventilated that we two are almost leading an outdoor life. Mrs. Root thought I might not feel so much like work after my heavy loads of yesterday; but when I opened my eyes this morning I could have honestly shouted, "Bring on your heavy loads!" for I really rejoiced at the thought of getting hold of them.

\* Perhaps I should add that one can hardly expect this "high-pressure" way of working will keep up with the average hired man unless the boss is on hand, and "right in it." I explained to the boys the advantage of all the short cuts I have mentioned, and they seemed to agree with me in regard to saving time and labor; but if I didn't watch close the boat would stop away off; the driver would pick up the last stone, and all hands stand idle until the big horse "got a move on him." Then when it came to unloading they would begin by picking up the small stones first. I suppose they did it without thinking, and perhaps they think I am fussy about such small matters; but when they have farms of their own I hope they will remember how I taught them to do a day's work in half a day, and not work any harder either.



# Victor's Superior Italians..



## W. O. Victor,

Queen Specialist.

Wharton, Texas.

I have told you from time to time what Messrs. E. R. Root, W. Z. Hutchinson, O. L. Hershiser, and a great many others, prominent in apiculture, have had to say in regard to my bees, and I have many similar testimonials that I would be glad to use, but space forbids. I will have to quote, however, from so prominent a person as G. M. Doolittle, as follows:

"I kept one of the queens I bought of you last season, and she approached the nearest to mine of any thing I have had for a long time."

I am filling Mr. Doolittle's order for 40 queens this season, 36 of which have gone forward.

Mr. O. P. Hyde paid me a visit a few days ago, and I invited him to inspect my apiaries with a *critical eye*. I was often pleased at the high compliments paid my bees by him. He said that he had never seen any thing like it before (yard No. 1); that the *absolute uniform marking* (3 band) and *gentleness* were simply wonderful. He made frequent mention of the *superior size and beauty* of the queens; and in conclusion stated that I had the *largest and best equipped queen-yard* that he had ever seen, which would include many.

Heretofore I have been very *modest* in my expressions in regard to my bees, leaving their praises for others to sing. I can be quiet no longer, and will have to say that *I know that yard No. 1* is composed of the *best bees for honey gathering, uniform marking, and gentleness*, I have ever seen, and believe they are as *good as there are in the world*, regardless of the price asked or the reputation of the party offering them for sale. There is not a queen in any of my full colonies that is not *worthy* of being classed as a *breeder*, therefore all my mating drones are of the *highest grade*. The stock is a combination of the Root Red-clover, J. P. Moore, Hutchinson Superior Stock, and *selections from my stock* that I have used for years, and which furnished the bees that were awarded the diploma at the Pan-American. I am using as breeders nothing but the *very best* that can be selected from over 100 colonies, all of which have been tested in every respect. One of them headed a colony that gathered right about 400 lbs. of honey last season, and is still *keeping up the lick*.

The increasing demand for queens from this yard since the first of June forces me to advance the price to that asked before June 1, viz.: Untested, \$1; 6, \$5; 12, \$9. Select untested, \$1.25; 6, \$6; 12, \$11. I am out of tested and select tested at present. Breeders, \$5 to \$10, according to superiority, tongue-reach, etc. Queens from Yards 2 and 3 at catalog prices.

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The new edition is now out. It contains 100 pages; is well illustrated—some of the pictures being colored plates on enameled paper—and describes some of the most advanced methods of management from one end of the year to the other; 31 chapters being devoted to as many prominent features of bee-keeping. Price 50 cts.; or the BEE-KEEPERS' REVIEW and the book one year for only \$1.25.

W. Z. Hutchinson, Flint, Michigan.

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## Moore's Strain of Italians

Prof. Frank Benton, of Washington, D. C., whose name is familiar to all progressive apiarists, says:

"I have several times, in the course of correspondence, and in conversing with bee-keepers, had occasion to answer the question: 'Where can the best Italians be got?' It is, perhaps, not an easy thing to say, with certainty, but at least I have felt I might be able to tell where GOOD ones could be obtained. A number have been referred to you, for, although I have not tested your stock personally, I thought I knew pretty well, from general reputation, its character. A bee-keeper near here—Mr. Geo. A. Lanphear, of Vienna, Va.—who got some queens of you on my recommendation is so well pleased with them—in fact, gives your bees such a good recommendation to me for gentleness and working qualities, particularly their working on red clover, that I thought I would like to try some myself."

I was not aware that Prof. Benton was recommending my stock until I received the above letter. Such testimony as this certainly has great weight, and shows why my business has grown so fast.

Prices for daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75 cts.; each; six, \$4.00; dozen, \$7.50. Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00. I am now filling orders by return mail. Safe arrival and satisfaction guaranteed. Send for descriptive circular.

My 23-100 breeder was awarded a \$25.00 prize by The A. I. Root Co. for producing bees showing the longest tongue-reach on record. Competition was open to the whole world.

J. P. Moore, L. Box 1, Morgan, Kentucky.

Pendleton County.

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Untested, 75c; tested, \$1.25. I raise all my queens by the swarming method. Had many years' experience. You can't get better queens. Produce good workers. Robert Mirring, Dryad, Lewis County, Washington.

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## Famous Italian Queens.

Buckeye Strain of Three-banded Long-tongues are wonderful honey-gatherers. One customer bought 10 dozen. Just think of it. He bought a few last season as a trial.

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As fine as money can buy. Either of the above by return mail, 75c each, six for \$4.00; selected tested—best money can buy—\$1.50. Full line of finest Dovetailed Hives and Supplies. Send for catalog.

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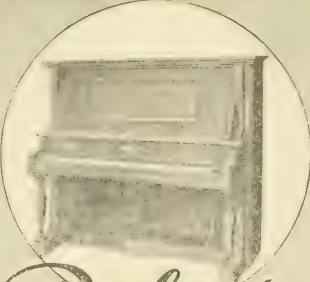
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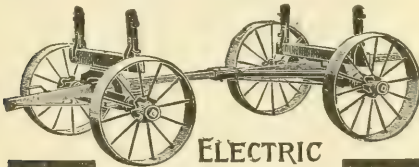


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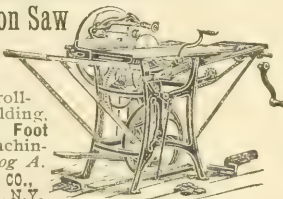
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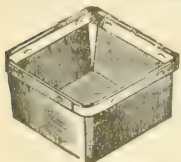


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Bred from Duston's best. Stock and eggs for sale in season. Satisfaction guaranteed.

J. F. MOORE, : TIFFIN, OHIO.



## BELGIAN HARES!

With every hare sold goes a full pedigree, register number, and score-card, scored by an official judge. Does will be bred to one of our famous high-scoring bucks free. Write for book. Mgr. of The A. I. Root Co. J. B. MASON, MECHANIC FALLS, MAINE.

## Barns

Barns of plank save timber and cash. Neatest, cheapest, strongest, most desirable. 5000 in 42 States. Tested for 20 years. Indorsed by agricultural colleges and scientific men. Book for stamp.

Shawver Brothers, Bellefontaine, Ohio.

## BEEES & SUPPLIES

SOLD AT A SACRIFICE.

Removal will cause me to sell my entire lot of bees and supplies, consisting of 125 colonies three-banded bees, straight stock from imported queens in ten-frame, two-story, full-depth super, Root hives, mostly new, well painted, 19 straight combs to hives; bees in good condition; will take \$2.25 per colony. Also 50 cases 1½-inch-screw-cap honey-cans, two to a case, and 14 cases 8-inch new cans; will take 65¢ per case for the 1½-inch and 85¢ per case for the 8-inch, at Hutto, Tex. Also other supplies such as ten-frame hives, Dovetailed and Ideal supers, and foundation; will sell below cost; get prices. This stock will be sold before Aug. 1, 1902. Will sell any or all of the lot to suit buyers.

Henry Schmidt, Box 98, Hutto, Texas.

DEALER IN BEES AND HONEY.



## New Self-sealing Honey-pails

Six sizes; sample by mail, 10 cts. Send for price list.

R. H. SMITH,  
St. Thomas, - Canada.



# The WING ORGANS.

We make the Wing Organs and sell them ourselves. They go direct from

## **FACTORY TO HOME.**

We do not employ agents or salesmen. When you buy a Wing Organ, you pay the actual cost of making it and our small wholesale profit. This profit that we charge is very small because of the large number of organs we sell. A single agent or dealer sells very few organs in a year and has to charge a large profit.

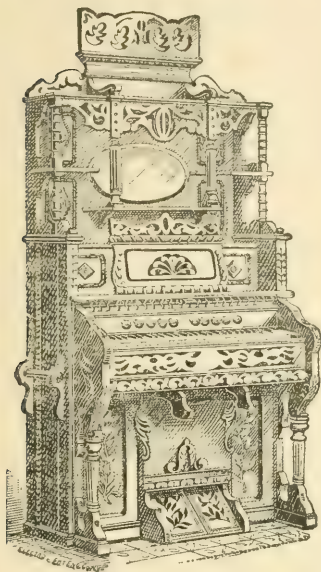
## **You Save from \$50 to \$150**

buying an organ direct from factory.

### Sent on Trial.

### We Pay Freight.

### No Money in Advance.



**W**E will send a Wing Organ to any part of the United States on trial. We pay all freight charges in advance. We deliver the organ to your railroad depot free of expense to you. We do not ask for any advance payment or deposit. You can try the organ right in your home for 20 days, and if not satisfactory to you we will take it back entirely at our expense. You pay us nothing unless you keep the organ. There is absolutely no risk or expense to you.

## **EASY - MONTHLY - PAYMENTS.**

Thirty-four years' experience enables us to guarantee every Wing Organ for twelve years against any defect in tone, action, workmanship, or material. Wing Organs need absolutely no tuning. They have a sweet tone, easy action, very handsome case. **CATALOG.**—A beautiful catalog of Wing Organs, containing half-tone pictures, will be sent free if you write.

1868—Thirty-fourth Year—1902.

# **Wing & Son, New York City,**

164-166 East Twelfth Street.

**Wing Pianos** are sold direct from the factory at a saving of from \$100 to \$200. They are sold on easy monthly payments. Sent on trial without any advance payment or deposit. Over 33,000 have been sold in the last 34 years. A book of information, containing 116 pages, sent free, if you will write to WING & SON, at the above address.

# 10 CENTS

That's all it costs to get acquainted with the

## Rocky Mountain Bee Journal.

We want to send it on trial to every reader of *Gleanings Three Months for 10 cts.* This vigorous young monthly has just entered its second year on a paying basis, and has become the recognized mouthpiece of the beekeepers of the great Rocky Mountain alfalfa regions. Address

The Rocky Mountain Bee Journal,  
Box 611, Boulder, Colorado.



### I Make Red-clover Workers

and I can work in flowers and get honey where others can't. I am guaranteed to work in red clover. Will forfeit \$100 to any one coming here, and proving that they can't work clover. Twenty years' experience in bees and queens. All queens are reared from best mothers and best methods. In 1900 many of my colonies stored 200 lbs. and over of red-clover honey. Our bees commenced swarming in April this year. It takes only good stock to swarm so early. One untested, 75c; dozen, \$7.00. Tested, \$1.00; dozen, \$10.00. Breeders, \$5.00. Golden queens as well as Red-clover. Four-frame nucleus, four-frame hive nicely painted, and nice queen, \$3.00 each. Queens by return mail. Fifty to 100 queens at special prices. Money-order office, Guernsey.

G. Routzahn, Menallen, Pa.

## NONE BUT THE BEST QUEENS ARE GOOD ENOUGH FOR ANY ONE.

No bee-keeper wants to give hive room to inferior bees. The best queens fill their hives with brood. The best bees fill their supers with honey. Every bee-keeper knows this, but does not know that *our strain* of Italians are in the *lead*. Try them. You will not be disappointed. Choice tested queens, \$1.00 each. Untested, 75c; \$8.00 per doz. Send for price list.

J. W. K. SHAW & CO., Loreauville, La.



## ITALY



the fatherland of Columbus, is the same of the best honey-bee. Best select long-tongued young tested Italian Queens, \$2; extra select breeding queens (one year old, worth \$10), \$3.00; by return mail. Address with mention of *Gleanings*, BIAGGI ANTHONY, Pedevilla, near Bellinzona, Italian Switzerland.

### Imp't'd Queens Direct from Italy

Please send us your address on a postal card, and we will send you our price list of queens, written in English. Our motto: "Whatever ye would that men should do to you, do ye even so to them." Address Malan Brothers, Queen-breeders, "Apiario," Luserna, San Giovanni, Italy.

### Minnesota Bee-keepers' Supply Mfg. Co., Manufacturers of

### Bee-hives, Sections, Shipping-cases, and Everything Used by Bee-keepers.

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

Minnesota Bee-keepers' Supply Mfg. Co., Nicollet Island Power Building, Minneapolis, Minn.

# Queens!

Buy them of H. G. Quirin, the largest queen-breeder in the North. The A. I. Root Co. tells us our stock is extra fine. Editor York, of the *American Bee Journal*, says he has good reports from our stock from time to time, while J. L. Gandy, of Humboldt, Neb., has secured over 400 lbs. of honey (mostly comb) from single colonies containing our queens. We have files of testimonials similar to the above.

Our breeders originated from the highest-priced long-tongued red-clover queens in the United States.

Fine queens, promptness, and square dealing have built up our present business, which was established in 1888.

### Price of Queens After July First.

|                                                        | 1      | 6      | 12     |
|--------------------------------------------------------|--------|--------|--------|
| Selected.....                                          | \$ .75 | \$4.00 | \$7.00 |
| Tested.....                                            | 1.00   | 5.00   | 9.00   |
| Selected Tested.....                                   | 1.50   | 8.00   |        |
| Extra Selected Tested—the best that money can buy..... | 3.00   |        |        |

We guarantee safe arrival to any State, continental island, or any European country. Can fill all orders promptly, as we expect to keep three to five hundred queens on hand ahead of orders. Special price on 50 or 100. Circular free. Send all orders to

### Quirin the Queen-breeder,

Post and Money-order Office, Parkertown, Ohio.

# HONEY QUEENS!

### Laws' Leather-colored Queens.

### Laws' Improved Golden Queens.

### Laws' Holy Land Queens.

A prominent queen-breeder writes: "I have reared and sold over 5000 queens in the past few years, and I am using your stock exclusively, as it is the *best I can get*." Another writes: "The queen mother I got of you is the *best queen* I ever saw." A prominent writer for the *Review* states the Laws queen is making a fine showing. Many nice letters indicative of the superiority of Laws' queens on file. Prices: Tested or untested, \$1.00 each; six for \$5.00. Discount on large lots. Write for circular.

### W. H. Laws, Beeville, Texas.

# Built for Long Service

## FROM THREE FACTORIES

We ship direct to the consumer. We make the most reliable line of vehicles, harness, etc., to be found anywhere and sell at the lowest wholesale prices.

### We Handle No Low-Grade Work.

Strong, durable material and good honest workmanship make our vehicles and harness outlast two of the ordinary kind. Write at Once for our guaranteed freight charges to your station on any vehicle. Carts from \$11.00 to \$38.75; Road Wagons from \$23.90 to \$105.00; Buggies from \$36 to \$82.45; Surreys from \$52.20 to \$120.12; Spring Wagons from \$37.50 to \$112.50; Farm Wagons from \$31.55 to \$65.65; Single Harness from \$4.80 to \$20.20; Farm harness from \$12.80 to \$39.00.

WE SEND FREE the largest illustrated Vehicle and Harness catalog ever issued. Send for it. CASH BUYERS' UNION, Dept. E-845, CHICAGO.







## NEW COMB HONEY.

We have received our first shipment of new comb honey, consisting of three crates of nice white honey in Danz. sections from Florida. We have customers waiting for it, so that it goes off promptly at good prices.

## BEESWAX DECLINED.

We mark down the price which we pay for beeswax to 27 cents cash, 29 in trade, delivered here. Wax is being offered more freely, and at declining prices. As we have reached the close of the season when we use large quantities, and have a good stock, we can not well pay now more than the price likely to be reached in the fall.

## HONEY-PACKAGES.

With the warm dry weather that is sure to come we may still expect a crop of honey, and you will be in need of honey-packages in which to market it. We are well supplied with square cans of 5, 1, 1/2, and 1/4 gallon capacity; also with square jars and No. 25 jars and Mason jars. We have another carload of the two latter styles engaged to come before the present stock is exhausted. If in need of any of these honey-packages, let us hear from you.

## ORDERS FILLED PROMPTLY.

Within a few days after the last number of GLEANINGS was mailed we caught up on orders, and for the last ten days we have been shipping the same day the order was received, or next day, with the exception of two or three items, material for which has been delayed in reaching us. The cold wet weather has cut the demand for goods down to almost nothing. Most of our dealers and agents report a similar condition. I believe all are now supplied with goods, and are filling orders promptly.

## Convention Notices.

## JOINT BEE-KEEPERS' CONVENTION.

The National Bee-keepers' Association and the Colorado State Bee-keepers' Association will hold a big joint convention in the Colorado State capitol, at Denver, on Wednesday, Thursday, and Friday, September 3, 4, and 5, 1902. There will be an exhibition of bee-products and bee-appliances, with liberal premiums. All bee-keepers are urged to prepare to make attractive exhibits. For particulars write to

FRED L. STONE, R. D., Longmont, Col.

## CENTRALVEREIN FUER BIENZUCHT IN OESTERREICH.

An International Exhibition in Bee-keeping will be held at Vienna, on the festival of Easter, 1903, arranged by the Central Association of Bee-keepers. It is intended to exhibit bees, hives, instruments, products, books, etc. Information can be received from the Centralverein fuer Bienenzucht in Oesterreich, at Vienna, Austria, I. Schauflergasse, No. 6.

## POULTRY PAPER 3 Months

and book "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts. if you mention Gleanings (reg. price, 50 cts.). Inland Poultry Journal, Indianapolis, Indiana.

**RUBBER STAMPS.** Send us 25 cts. for year's sub to our 16-p. monthly journal and we will mail you FREE as a premium a two-line Rubber Stamp, or two one-line Stamps, to print any wording you want.

THE FARM AND POULTRY NEWS, Middlesboro, Ky.

To make cows pay, use Sharples Cream Separators. book "Business Dairying" and cat. 288 free. W. Chester, Pa.

## Bee-supplies Quick

Let us show you how quick we can fill your orders. Best of goods and the best place in country to ship from.

Get our Prices on Dovetailed Hives and Sections. Write to us if you have any Honey or Beeswax to sell.

C. M. SCOTT & CO., INDIANAPOLIS, INDIANA.  
1004 East Washington Street.

## Queens for June and July, 60c.

Abbott L. Swinson, queen specialist, will mail warranted American Albino Italians (best bees known) to introduce the stock, at 60 cts each; \$6.00 per dozen. Everybody try them, and get the bee you need.

SWINSON & BOARDMAN, Box 358, Macon, Ga.

VANDE VORD rears Golden queens from the best honey strains; untested (from an extra choice Doolittle breeder) 75c, or 3 for \$2.00; tested, \$1.25 each.

Geo. J. Vande Vord, Daytona, Fla.

**FOR SALE.**—Italian bees; full colonies, \$4.00; three-frame, with queen, \$2.25; two-frame, with queen, \$2.00; one-frame, with queen, \$1.50; queens, \$1.00.

MRS. A. A. SIMPSON, Swarts, Pa.

**NORTHERN-BRED** Red-clover Italian Queens, bred for business by the best methods and from the best red-clover strains; honey-gathering and wintering qualities the prime object. Queens by return mail. Untested, \$1.00 to July 1st; after then, 75c. Tested, \$2.00 and \$1.50. Send for descriptive circular and price list.

I. F. Miller, Knoxdale, Pa.

## Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—One dollar for 15 W. P. Rock eggs; \$3.00 for 50, or \$5.00 for 100; from 93 to 95 scoring birds; cockerels and pullets, \$1.00 each; 75 cts. for one Golden Italian queen, or \$8.00 per dozen—after August 1st, 50c each or \$5.00 per dozen.

GEO. W. COOK, Spring Hill, Kansas.

**WANTED.**—Bee-keepers to study our advertisement and testimonial of queens in April 1st GLEANINGS. R. F. HOLTERMANN, Manager Bee Department, Bow Park Co., Limited, Brantford, Canada.

**WANTED.**—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid. O. H. HYATT, Shenandoah, Ia.

**WANTED.**—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no drip honey-cases for plain Danz. and 4 1/4 x 4 1/4 sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—To exchange American Eclipse evaporator—contains 78 reversible trays, 7 square feet each—for bees or offers, or will sell cheap for cash. Also want location for bee-yard in the buckwheat district, either West Virginia, Pennsylvania, or Maryland. REINHARD STEHLE, Marietta, Ohio.

**WANTED.**—A buyer for a quantity of honey-cans that have been used once. Write for particulars to L. C. WOODMAN, Grand Rapids, Mich.

**WANTED.**—Partners for a patent on a bee-hive. For particulars address with stamp, J. VOLKERT, Port Walthall, Va.

**WANTED.**—To exchange carefully reared queens for wax, honey, or hive bodies K. D. Address SWARTHMORE, Swarthmore, Pa.

# Now Ready!

## Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,

Wetumpka, Elmore Co., Ala.

## QUEENS, QUEENS

**Old Standbys.**—The A. I. Root Co., to whom we have sold queens for many years, wrote us last May, thus: "Are you running low on queens? We hope not, as you seem to be our standbys. Send us 24 per week instead of 12, till further orders."

**Beat Any Thing He ever Saw.**—The Cyprian queens you sent me last year beat any thing I ever saw rearing brood and filling their hives with honey.—J. Nielson, Huntington, Utah, Sept. 4, 1901.

**Is Great.**—The nucleus you sent me last fall is great—the finest queen that ever crossed the plains. Please duplicate her this time. Mr. Jordan says the nucleus you sent him cast two fine swarms.—G. R. Warren, Fruitvale, Cal., May 12, 1901.

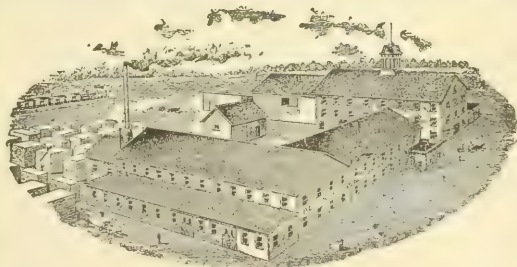
**\$50 Queens.**—My nice queen that you sent me, and I put in a hive with a handful of bees on the 6th day of last June, has now nearly filled her 30-lb. super for the third time. No man's \$50.00 bill could take her. Please send me another one like her as soon as possible, and keep a dozen ready for me like her for the 20th of April next, and I will make you a nice present.—M. Brown, Station A, Little Rock, Ark.

We breed Italians, Cyprians, Holylands, Carniolans, and Albinoes, in separate yards, 5 to 20 miles apart. Prompt service. Safe arrival guaranteed. Bees by the pound, nucleus, full colony, or by the carload.

Prices: Tested, \$1.50 each; \$8.00 for six; \$15.00 per dozen. Untested, February, March, April, May, \$1.00 each; \$5.00 for six; \$9.00 per dozen. Fine breeders, \$5.00 each. Send for our catalog, free by mail; tells how to rear queens and how to keep bees for profit.

Agents for Dadant's Foundation and *Gleanings*. Premiums given. Don't fail to get our printed matter. It's ALL free. Bee-supplies of all kinds.

The Jennie Atchley Co., Beeville, Tex.



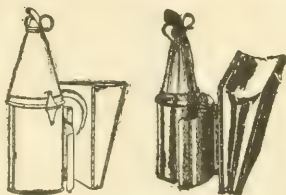
Kretchmer Mfg. Co., Box 60, Red Oak, Ia.

## BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

— AGENCIES —

Trester Supply Company, Lincoln, Neb.  
Shugart & Ouren, Council Bluffs, Ia.  
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,  
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

## Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.



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## Honey Column.

### GRADING-RULES.

**FANCY.**—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

**A No. 1.**—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

**No. 1.**—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

**No. 2.**—Three-fourths of the total surface must be filled and sealed.

**No. 3.**—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

### CITY MARKETS.

**BOSTON.**—Our honey-market is wholly normal, the demand being extremely light. Fancy 1-lb. white in cartons bringing 15c and from that down to 13c, according to quality. **BLAKE, SCOTT & LEE.**

July 8. 31, 33 Commercial St., Boston, Mass.

**CHICAGO.**—The honey market may be said to be on a vacation so far as actual business is concerned. Should the harvest of 1902 be practically a failure there will be no dearth of extracted honey, as there is more of it in storage than we have ever known at this season of the year. If the consumers are not too greatly impressed with the idea that the honey harvest is a failure this season it may be worked off at an advance in price. Beeswax is lower, yet sells well at 30c per pound. **R. A. BURNETT & Co.,**

July 7. 199 South Water St., Chicago, Ill.

**MILWAUKEE.**—The usual summer dullness is on in the honey trade, the acidulous in the shape of fruits attracting the eye and taste more than the sweets. The demand for honey, either comb or extracted, is confined to small lots as needed by the retail trade. The supply is small, especially of choice or fancy comb and domestic extracted. The receipts are very small. We continue to quote: Fancy, 1-lb. sections, 14@15; A No. 1, 13@14; dark or inferior, nominal, 10@12. Extracted, in bbls., kegs, or cans, white, 6@7; dark, 5@6.

**A. V. BISHOP & Co.,**

July 11. 119 Buffalo St., Milwaukee, Wis.

**PHILADELPHIA.**—Some new comb honey has been arriving, and prices are not settled yet. We are asking 14 to 16c, as to quality, for white comb. California extracted honey, 6c in carlots, and from one to two cents advance in less quantities. Beeswax 28c. We are producers of honey, and do not handle on commission. **WM. A. SELSER,**

July 7. 10 Vine St., Philadelphia, Pa.

**BUFFALO.**—Fancy white comb, 14@15; A No. 1, 13@14; No. 1, 12½@13; No. 2, 11@12; No. 3, 10@11; No. 1 dark, 10@11; No. 2, 9@10. Extracted white, 6@6½; dark, 5@5½. Beeswax, 28@32. Hardly any demand for honey. **W. C. TOWNSEND,**

July 7. 167 Scott St., Buffalo, N. Y.

**SAN FRANCISCO.**—Comb honey, 10@12. Extracted, water-white, 5½@6½; light amber, 4@5½; dark, 4@5. Beeswax, 27½@30. **E. H. SCHAEFFLE,**

June 27. Murphys, Calif.

**CINCINNATI.**—The shipments and offers on new comb honey are so little, besides the predictions for the yield of honey so uncertain that I can give no figures for prices. Extracted is selling for the same price—amber in barrels, 5@5½c; alfalfa, 6@6½c; white clover, 6½c. I am paying for beeswax 28c cash. **C. H. W. WEBER,**

July 7. 2146 Central Ave., Cincinnati, Ohio.

**KANSAS CITY.**—Since our last quotations some new comb honey has arrived in this market. We quote: New comb honey, per lb., 14@15c; old comb honey, per lb., 12@13c; extracted, white, 6@6½c; amber, 5@6c. Beeswax, 25@30c. **C. C. CLEMONS & Co.,**

July 5. 306 Grand Ave., Kansas City, Mo.

**NEW YORK.**—There is some fair demand for comb honey at 14c for strictly fancy white; 12@13c for No. 1, and 10@11c for amber. Extracted quiet at unchanging prices. Beeswax dull and declining at 28c. **HILDRETH & SEGELKEN,**

July 9. 265-7 Greenwich St., New York City.

**DENVER.**—We are now entirely out of old stock of comb honey; a few cases of the new crop have commenced to come in. We are holding same at \$3.00 per case of 24 sections for No. 1 grade. Extracted honey, 7@7½c per pound. Beeswax, 24@27c. **COLORADO HONEY-PRODUCERS' ASS'N,**

July 8. 1440 Market St., Denver, Col.

**ALBANY.**—Honey market dull, with no stock on hand and no receipts yet. Too early—is between seasons; but will be some call beginning next month. The crop near here is very light owing to wet weather, and we look for good prices to prevail this season. **MACDUGAL & Co.,**

July 12. 375 Broadway, Albany, N. Y.

We can place a few cars of comb and extracted honey; will be glad to correspond with parties having some to offer. We also solicit local consignments. **C. C. CLEMONS & Co.,**

Kansas City, Mo.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer. **SEAVEY & FLARSHIELD,**

1318-1324 Union Avenue, Kansas City, Mo.

**WANTED.**—Honey and beeswax. Mail sample, and state price delivered at here. **C. H. W. WEBER,**

2146, 2148 Central Ave., Cincinnati, Ohio.

**WANTED.**—Comb and extracted honey. State price, kind, and quantity. **R. A. BURNETT & Co.,**

199 South Water St., Chicago, Ill.

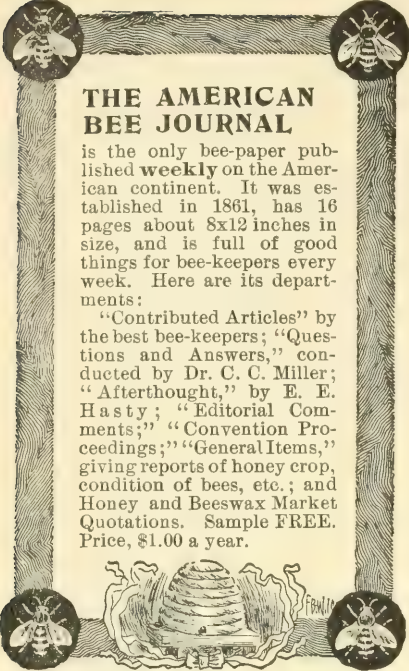
**WANTED.**—Comb honey, white or amber, for cash or on commission, clover preferred. Reference—The A. I. Root Co. **C. G. TURNER,** Mechanic Falls, Me.

**WANTED.**—Offers of car lots of honey, especially comb honey. Cash paid on delivery at your warehouse or station. **THOS. C. STANLEY & SON,**

Apiarists and Honey Buyers, Manzanola, Col., or Fairfield, Ill.

**FOR SALE.**—Lot of fancy white-clover honey, also some basswood, new, 300-lb. barrels at 8½c; 60-lb. cans at 7½c. **E. R. PAHL & Co.,**

Broadway & Detroit Sts., Milwaukee, Wis.



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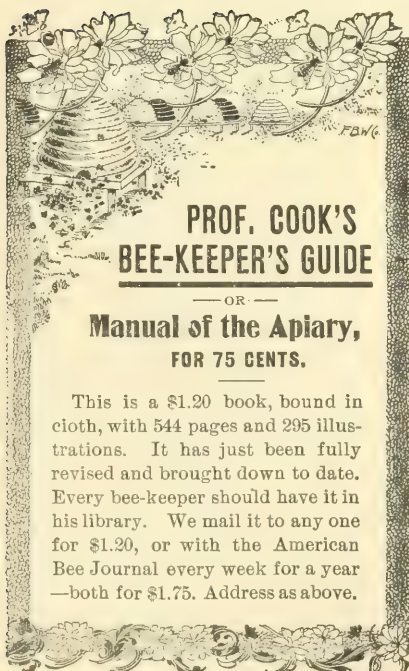
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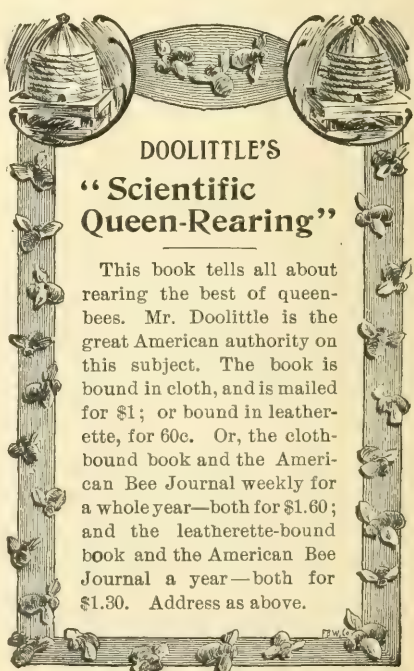
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[Established in 1873.]

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Published Semi-monthly by

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VOL. XXX.

JULY 15, 1902.

No. 14



EXTENSIVE PREPARATIONS are being made for the International Bee Exposition to be held at Vienna, April 4—26, 1903.

J. WINKLER says in *Bienen-Vater* that the best and cheapest way to send swarms is *by mail*! Talk about this being a fast country!

TO THE PLANS given, p. 547, for pure fertilization, might be added the one that Dzierzon thinks best of all, feeding to get the desired drones and queens to fly before 8 A. M. It certainly seems one of the easiest, if feeding will make them fly.

WHITE CLOVER unusual this year. First bloom unusually early—May 20; full bloom unusually late—hardly before July 4, with a fair crop on that date. As only two days yet have been warm, it remains to be seen whether there is any nectar to be had from it.

DOOLITTLE says queen-cells should be rather more than five-sixteenths in diameter. Call it five and a half sixteenths—that's just a third of an inch. Then we have: worker-cells five to the inch, drone-cells four to the inch, and queen-cells three to the inch.

F. A. HANNEMAN, the inventor of the queen-excluder, now living in Brazil, although in his 82d year, contributes an interesting article of more than two pages to *Bienen-Vater*. [If you have a copy of that paper, doctor, send it to us and we will make some extracts.—ED.]

IT'S WELL ENOUGH to give the minutiae of cell-cup making, as given p. 564, and it's well enough to give the minutiae of foundation-making; but, all the same, it's better to buy than to make in either case. I don't believe I can make cell-cups as cheap as I have bought them of Mr. Pridgen; and if they are to be regularly used I don't see why they should not be on the price list of supplies. [We have thought several times

of making cell cups, but so far have diverted all orders that we have had for these to our friend W. H. Pridgen. I still think, however, it is well for us all to know how to make these things, even in a wholesale way.—ED.]

C. MEYER, in *Centralblatt*, quotes from Cowan's Guide Book (although I do not find it in my English edition) the following plan to prevent swarming: Having two strong colonies, take from the first all brood, replacing with empty combs or foundation, and put the combs of brood in a second story over the second colony. This seems based upon the paradox that a sufficient increase of unsealed brood will prevent swarming.

MR. EDITOR, you are "fully convinced" that no drug, unless awfully corrosive, will kill foul-brood spores. But intelligent professors in Canada say they *have* killed spores with formalin without injuring the combs. [It is not ordinarily wise to contradict scientific men. If competent professors say that formalin will kill the spores I will not deny the statement, although I should hate to rely on the efficacy of the drug in an apiary of mine.—ED.]

YOU'VE HAD ideal honey weather, even if not for long, at Medina. Different here. Up to July 2 I wore exactly the same coat, pants, and vest I wore all winter, discarding under-clothes. I've fed nearly a thousand pounds of sugar to keep the bees from starving, and breeding has been nearly at a standstill. July 2 came a sudden change; thermometer ran up to 86°; next day 94°; and this morning, July 4, it bids fair for a scorcher. [See editorials.—ED.]

IN FASTENING bottom-board and screen to hive for shipping, the editor advises that four strips be nailed at each corner. Isn't that unnecessarily strong? Wouldn't one strip at each corner be enough? [Yes, for you, perhaps; but just the other day we were moving a load of bees to one of our out-yards, and used only two fastenings at the two opposite diagonal corners, and we had more or less trouble. Our yard-men conclude they would prefer four fastenings,

or at least one in the rear and two in front; and for shipping, at least, I would strongly urge four fastenings. The advice we give in a general way to the public should err, if at all, on the safe side.—ED.]

W. GÜNTHER says in *Centralblatt* that, in spite of the mild climate and plants blooming the entire year, bee-keeping in Brazil is not remunerative. Pollen is always to be had, honey not always, and the constant flight of bees throughout the year makes an enormous amount necessary for the support of a colony. Overstocking, abundance of bee-enemies, and low prices make too heavy a combination for success in the business. [This is probably a condition that exists in other portions of the world.—ED.]

"BUT WHY should bees put wax in the bottom of the cells? We are certain that they remove the shed skins whenever they become too thick." So ye editor, p. 243. Are you sure they remove any thing from the bottom of the cell? If so, how is it that an old septum may be  $\frac{1}{8}$  in. thick? [While it is true that the old septum may be  $\frac{1}{8}$  inch thick, yet when a comb gets to be ten years old, and has had five or six broods in it in a season, the cast-off larval skins would accumulate to such a thickness during that time that, if the bees did not thin the septum, or at least remove some of the surplus from the bottoms of the cells, the cells would be nearly half full. While we have contended that the diameter of the cell does not grow less through age, we may say, also, that the depth of them does not decrease materially during a corresponding period. Bees will allow a certain accumulation in the bottom, but little or none around the sides.—ED.]

THE IDEA seems to prevail that there is an advantage in very shallow brood-frames, because in them there will be brood to the top-bar, with no honey at the upper part to prevent bees going directly from brood to sections. I wonder if there is a difference in localities. With me Langstroth frames have brood to the top-bars, so that there would hardly be an advantage in shallower combs. [Why, certainly, doctor, you do not mean that the majority of your Langstroth frames have brood clear up to the top-bars. When I visited you and looked over your frames, my recollection is they were not so filled. It is only occasionally that we find a full frame of brood of Langstroth depth, and that is generally with the Cyprian or yellow stock; and the most of the yellow stock, from its appearance and nervous actions, I believe had its origin in Eastern blood. I will bet a cookey there is no difference between your locality and mine. If you have lately discovered a method by which you can *force* your queens to fill their brood-frames full of brood without the use of the Eastern or yellow stock, I wish you would tell me how you do it. Somehow I had come to believe that it was an axiom that the *average* Langstroth frame would

be filled about two-thirds full of brood in actual service; the other third, during or after the honey-flow, would have an inch or more of honey under the top-bars. I have just been looking over hundreds of frames in our own apiaries; and I am sure the condition you ascribe to your yard does not exist in ours.—ED.]

THE PER CENT of water in honey has been given as varying greatly, from 13 all the way up to 32 per cent or more. Prof. Frank T. Shutt, chemist of the Ottawa Experimental Farms, after spending much labor on the problem, says, according to a report in *Canadian Bee Journal*, that he doesn't know the answer. The trouble is that, at the temperature at which analyses have been made, levulose decomposes, and the loss thus resulting has been counted as so much water. He says: "From the first weighings we calculated the percentage of water, and got numbers in the neighborhood of 14, 15, 16; after 12 hours more we obtained to 18, and then another twelve hours gave us 20 and 25 per cent; and then continuing, the per cent of loss went up to 28, 30, and 32. Evidently there was no stopping-place, and what we were calculating as water was really in large part due to the decomposition of honey." So he thinks the great discrepancy does not result from the difference in the honey itself, but from the difference in time used by the different analysts. He thinks the per cent of water in honey will be found nearer 15 than 30.

R. C. AIKIN, in *Review*, arraigns the entire fraternity of manufacturers because ten-frame hives are too narrow to admit properly a dummy, and eight-frame hives are so wide as to require two dummies. I don't know about the ten-framers, but I stand up for the eight-framers being all right. Formerly they were too narrow, but now they are  $12\frac{1}{8}$  in. inside measure. With spacing  $1\frac{3}{8}$  from center to center, there will be a space of  $1\frac{1}{2}$  to  $1\frac{1}{8}$  left at one side. Put in the center of that space a  $\frac{1}{8}$  dummy, and the space each side of the dummy will be  $\frac{7}{8}$  when every thing is new, becoming less as propolis accumulates and combs become old. Whether new or old, I have never known comb to be built back of the dummy, as Mr. Aikin says happens. [If we had had it to do over again, we as supply-manufacturers would have left the eight-frame hive as we originally got it out— $11\frac{1}{2}$  inches—so that it would have the same amount of room relatively as the ten-frame hive. I find in actual practice that, in the manipulation of Hoffman frames, at least in ten-frame hives, I do not find any need of a dummy; and in handling the eight-frame hive with a dummy in, I find it is easier to remove the Hoffman frame direct than to take out the dummy; and usually I can ascertain all I need to know about a colony by removing one frame. We had contemplated making the ten-frame hive wider; but my advice was to leave it just



as it is. I believe your sister once said that, in actual practice, she thought it was easier to remove a frame than a dummy, and I agree with her.—ED.]

THE EDITOR, p. 563 and elsewhere, protests against encroachment upon fields already occupied, and at least one pathetic appeal has been made that the rights of bee-keepers should be respected; and now the danger is that some freak-brain will rise and inquire why there should not be laws to protect bee-keepers in their rights. [While there are cases in which the rights of other bee-keepers are not respected by a too close encroachment on their territory, yet I was surprised, in my six-thousand-mile trip among the bee-keepers last year, to note that there is a certain unwritten law, fairly well respected, that two yards must not be located within a quarter of a mile of each other. While, ordinarily, there should be at least a mile and a half between the apiaries, the distance has been gradually reduced to about a mile. In some localities this distance is practically as good as two or three miles. I think I saw places in Arizona, if I am not mistaken, where there were four apiaries located on the four corners of a section. A "section" in the West is a square mile. But there are only a few places in Arizona that will admit of such grouping; because there is nothing but alfalfa that would support such a number of bees.—ED.]

"BEE-GROWER."—Um—er—well, I don't know. Why is "bee-grower" any better than "bee-keeper"? Doesn't it make for clearness to have just one word for each idea and one idea for each word? "Tautology"? There's no tautology in the case, and Stenog must have been asleep to allow such a thing to go in. [Why, doctor! not tautology? Is it possible you have not consulted your Standard Dictionary? If you will look in that authority you will see I used that word exactly right. I have in my lap the Century Dictionary, acknowledged to be authority the world over, and it defines one of the meanings of tautology thus: "A repetition of the same word." Indeed, the original Greek from which the word is derived means exactly that. Both the Standard and the Century say we used the word correctly. The flexibility and wealth of any language depend on its synonymous words to a great extent. Because the English language has borrowed from so many languages, it is more capable of expressing fine shades of meaning than any other language in the world. I have sometimes thought that the glossary of special terms in bee-keeping was not quite extended enough, hence my suggestion to adopt a word already adopted and synonymous with bee-keeper.—ED.]

H. MARGIOL, in *Ill. Monatsblaetter*, says that uncapping by heat is the most rapid way, but it gives the taste of wax to the honey. That settles it that the knife or fork must be used, and across the water

they say the uncapping-fork works more rapidly than the knife. [My, oh my! we must test that uncapping-fork. If the bee-keepers of Europe have determined that it works more rapidly than a knife, we are big—well, fools, for not trying it. How often inertia of conservatism stands in the way of progress, preventing us from getting out of the rut on to a good smooth road! When I think of some of the old farmers who make much ado about the increase of taxes whenever the authorities proceed to make good roads, I think the fools are not all dead yet. Those same farmers are stupid, or, rather, so blind they will not see that every mile of good roads would *in the end* reduce taxes, and save them hours of time and dollars in money. If I had the power I would make good roads all over the country, and let the farmers howl; because I know that, *in the end*, they would rise up and call me blessed. There, I did not mean to talk about good roads; but let us not, as bee-keepers, be penny economical and pound extravagant. Let us be wise enough to try any thing pronounced good by any considerable number of people, even if they do speak a different language. I have considerable respect for the opinions of some of those Dutch—no, Germans.—ED.]



Fast o'er the fields, from flower to flower,  
Beneath the sun's bright blaze,  
The bees at last secure the prize  
And hum aloud their praise.

Just as the forms for this issue were going to press, the following telegram was handed me by Mr. Calvert. There being no other page available, I have made room for it here.

MR. ROOT:—Father died this morning at 11:30, after a very short illness. C. P. DADANT.  
Hamilton, Ill., July 16.

#### AMERICAN BEE JOURNAL.

In speaking of sulphur as a cure for bee-paralysis, Mrs. E. B. Hawkins says:

Sulphur will cure it. I have had it in my apiary for three years. I have tried salt, but it did not do any good, and in rainy weather it makes the hives too damp.

This spring I tried sulphur; it cures every time. I take a flour-dredger and dust it over the combs. You will see an improvement in less than two weeks, and it is seldom that I have to give more than one dose. If it makes its appearance again, give them another dose. The sulphur has the merit of being harmless.

Certainly worth trying.

As to the effect of different foods on animals and plants, Mr. L. Stachelhausen says:

If corn is raised in a fluid containing hyposulphide of magnesia the young plant will bear blossoms quite different from that of corn. Frog-eggs develop into quite other frogs in water containing salt, from sweet water. In the animal kingdom we have another ex-

ample in our bees. An impregnated egg can develop into a queen or into a worker-bee, and which one will develop is decided by the nourishment of the larva. We know a worker-bee is not simply an undeveloped or crippled queen, as in the worker-bee the digestive organs are fully developed, which are missing or not fully developed in the queen; the same is true with other organs.

L. L. Andrews says the honey season in Southern California has been greatly over-estimated, and thinks it will not be a fifth of a crop, and in some of the best localities there will be none. That agrees with other correspondents in that region. J. W. George, same county as Mr. Andrews, gives a report with a still deeper tinge of indigo in the background.

### BRITISH BEE JOURNAL.

In our preceding issue attention was called to the case of a bee-keeper in Wales who sent some suspicious-looking brood to the editor of the *Brit. Bee Journal*, Mr. Carr, who pronounced it a very severe case of foul brood, and said there was enough of it to contaminate the whole of Wales in a season or two. As to what kind of prophet Mr. Carr is, the following extract from Mr. John Morgan, of Wales, will bear testimony, as also to the value of bee-keepers' associations. He says:

I, too, am another bee-keeper in Wales, and badly hit by foul brood. Of fifty stocks put up for winter only two were found in the spring unaffected by the scourge. It had made its appearance in some of the hives a year ago, and after then treating the affected cases in a drastic manner and, as I thought, cured them, the discovery made this spring that the disease had spread throughout the apiary was disconcerting in the extreme. The number of my stocks is now reduced by deaths and uniting to thirteen, and of those not more than three are of effective, surplus-storing strength. All old combs are destroyed, and hives cleaned, and I am hopeful that with care the disease will be kept under. . . . My present experience has convinced me of the urgent need of a British foul-brood act, for, so long as half or more of our counties are without bee-associations, the means for keeping foul brood under control are practically non-existent. Even were every county provided with its association, the non inclusion of a large proportion of bee-keepers would go far to nullify the efforts of the associations in their attempts at repression. It seems to me that nothing short of compulsory powers will avail.

### IRISH BEE JOURNAL.

This new journal not only holds its own in point of interest, under the direction of Mr. Digges, but is improving. As to whether apiculture should receive public encouragement or not in Ireland, the following is a suggestive pointer:

At a meeting of the Leitrim County Council, on May 16th, when a grant of \$150 in aid of bee-keeping in the South Riding came up for confirmation, it was opposed by one of the councillors, Mr. Moran, who gave expression to the following opinion, which we recommend our readers to take as patiently as they can. Mr. Moran. Bee-keeping is meant only for lazy, indolent people, who are too lazy to work. I wonder they don't start to rear frogs [laughter]. It is all bosh; giving money to lazy people to rear bees, and we poor hard-working people must pay for it all." Another councillor, Mr. Wallace, who knows a good thing when he sees it, spoke very warmly in support of the grant, and said: "I will send Mr. Moran a copy of the *Irish Bee Journal*, and then I know he will be converted to bee-keeping," which turned the laugh upon Mr. Moran, and, of course, the grant was confirmed.



### REPLACING QUEENS, ETC.

"Say, Doolittle, I came this afternoon to ask you a question."

"Well, what is bothering you now, Mr. Smith?"

"I have several old hybrid queens that are past their usefulness, and I have tolerated them thus far only as I thought it would be better to let them go through the honey harvest rather than to run the risk of less honey in replacing them while the harvest was on. These I wish to replace with young Italian queens. How and when shall I proceed to do it?"

"Perhaps we better take up the *when* matter first."

"Very good. How about the *when*?"

"This can be done at any time; but I find that the bees supersede more queens just after the main honey harvest for the season is over, in this locality, than at any other time of the year; consequently, where I wish to supersede queens for any reason I do it just after the basswood-honey season is over, as basswood gives our main honey-flow."

"But I live where white clover gives the main yield."

"Very well. Then your best time would be just after clover has failed, which would naturally be from July 1st to 15th."

"I comprehend now. The superseding is to be done after any honey-flow has ceased where the person resides who wishes to do the superseding."

"Exactly."

"Then I am ready for the *how*."

"Unless a change in variety of bees is desired, I would advise the beginner to leave this matter of superseding of queens to the bees, as they will make fewer mistakes, if this matter is left to them, than the smartest bee-keeper in the land—especially where there is any Italian blood in the bees."

"But I told you I wished to change to Italians."

"Yes, I know you did; but I thought it might be well to give you this hint, so that, after your bees became thoroughly Italianized, you need not think you must be superseding their queens all the while."

"That was all right; but go ahead."

"Where a change of the breed of bees is desired, then, of course, the apiarist must do it. The plan I use most, and like the best, is to start queen-cells just before the basswood-honey yield closes, when the bees are in the best possible shape to raise extra-good queens; then two days before these cells are ripe, or two days before the queens will emerge from them, I go to the colonies having queens which I wish to supersede, and hunt out the queens and kill them.



Two days later the nearly mature cells are placed in queen-cell protectors and placed in these colonies."

"What are queen-cell protectors?"

"They are a sort of cone-shaped affair made of wire cloth or wire wound in a coil just a little larger than the cell, and having a hole about the size of a leadpencil in the small end for the queen to come out through when she bites the covering from the point of the cell. The A. I. Root Co. keeps them for sale, and will send you a sample, if you so request, with five cents for the same. They are used to keep the bees from destroying the cell before they fully realize they are queenless, or for any other reasons."

"I am glad to hear of these; but does this insure a certain success in every case?"

"Not absolutely so; but my experience has been that, in nineteen cases out of twenty, young, thrifty, vigorous queens will be found laying in colonies thus treated, fifteen days later."

"But suppose I had rather buy my queens than to raise them."

"If you do not wish to raise the queens, that is your privilege; but the apiarist who raises his own queens is independent, and no one is a full-grown bee-keeper till he or she learns to do this. But you can send away for the queens if you so think. But I would advise you to raise a few queens, in any event. It is something you will enjoy after you once try it, and will be time profitably spent besides, as there is little or no worry over the introducing part with the cells."

"I am glad you touched this introduction part, for I am not used to introducing queens. Is there much trouble and loss connected therewith?"

"With the old veteran there is little loss, and with the directions on the cages containing the queens there is little trouble. In this we are ahead of what they were a quarter of a century ago. As a few days without a laying queen is of little consequence at this time of the year I would advise, to insure against loss in introduction, that the old queen be killed from nine to ten days before we try to introduce a new queen to the colony."

"What do you do this for?"

"This is to prepare them so they will want a queen so badly that they will surely accept the new queen when given. During these nine to ten days they will construct queen-cells from which to furnish themselves with another queen, and also perfect and seal all larval brood, so that they can not construct more queen-cells should all of these cells be taken off. Knowing this we proceed on either of these days to open the hive, shake the bees off the combs, so we can readily see all the queen-cells which may have been started, cutting or breaking every one off. This makes the colony 'hopelessly queenless,' as it is called, so that they are glad to take any queen that is offered them, so that the existence of the

colony may be preserved. Now follow the directions sent with every queen, letting the bees eat the candy away till the queen is liberated, according to the instructions accompanying the queen."

"Have you any other plan?"

"If you do not wish to go to this trouble, there is another way, which is usually successful. It is, to remove the old queen in the forenoon of a pleasant day; and at night, after the bees have all returned home, give them a little smoke; and when they are filled with honey allow the new queen to run in at the entrance, blowing in a puff or two after her. Do not open the hive in four or five days, in either case, and you will rarely fail."

## EFFECT OF THE WEST INDIA HONEY ON THE MARKETS OF THE UNITED STATES.

A Corroboration of the Statement Made by Mr. Morrison, by one of the Most Experienced Commission Men.

BY R. A. BURNETT.

*Mr. Root:*—We have been much interested in the article written for your June 15th issue by Mr. W. K. Morrison. It is a most intelligent setting-forth of the actual conditions that exist in the West Indies. The natives of those islands are practically incorrigible, and very few Americans are so constituted as to be able to bear with them as associates or even as laborers. The sentence in which he speaks of environment as dragging down the native-born white is a most intelligent conception of the fact therein set forth. No man with a wife and children can afford to run the risk that he must take for their welfare. While it is probably true that some man without family ties can go there and live a few years and gather money faster than he can elsewhere, he simply sacrifices all social interchange for the time being.

Mr. Morrison is very modest when he says, "I do not think that the present tariff of a cent or so per pound on honey sent to the United States avails very much: it only tends to discourage trade." That has been our opinion for quite a long time. We dealt in Cuban honey only long enough to satisfy some customers who were prejudiced in favor of the Cuban honey (on the supposition that it had much more of the honey properties than any other honey known), that is to say, that it would stand the oven test, and carry its aroma into the product over any other honey in the market. It is now some years since we had any call for Cuban honey in preference to that produced in the States. To a large user of Cuban honey we would offer other honey which, in our opinion, would give equally satisfactory results to the manufacturer, on the condition that, if our directions were followed, we would be responsible to them for any damage that might ensue from the use of

American honey versus Cuban or any other of the so called strong honeys. The result was that we invariably won them over to using that produced in the States; but if the tariff did not exist our Eastern merchants could sell the West India honey to Europe from New York city, or any other Eastern seaports that have ships trading regularly between the United States and the islands, and to that extent should be benefited.

We fully commend your opinion of the article, and hope that those who are thinking of going to the islands in the Atlantic will first have the opportunity to read Mr. Morrison's communication.

Chicago, Ill., June 20.

[I do not think the bee-keepers of the United States need to worry a particle over any possible effect that Cuban honey may have on American markets. The time may come when manufacturers—that is, bakers—will require more honey than America can produce. In that case they will probably draw on Cuba for an additional supply. But from what Rambler writes elsewhere, it is evident that Cuban honey is put up too thin, and contains too much impurity to enter as a competitor against our honey. The time may come, however, when American methods will prevail in Cuba, as they undoubtedly will, when a better grade of honey, better ripened, and cleaner, will be put up.—ED.]

### CUBA.

#### The Tariff; Reduction on Sugar; Stingless Bees.

BY F. N. SOMERFORD.

According to Mr. Havemyer's testimony before the Senate committee, a reduction of import duties into the United States on Cuban sugar would not lower the price in the United States. But would tend to raise the price in Cuba to the full extent of the reduction. Then Rambler was correct in his statement, page 236, in stating that American producers need not fear that lower prices of honey in American market would result from a reduction on imports of honey, for the rule applied to sugar would apply to honey. Rambler is correct in that statement; but we Cuban bee-keepers jointly ask the editor to reserve space in GLEANINGS eight months hence, when the Rambler, after a year's experience in Cuba, will probably be prepared to retract some other statements that he has made.

Mr. Harry Lathrop makes beedom jingle with poetry. His advice of not thinking of to-morrow is not needed by the majority here.

They never think about to-morrow.  
But to-day—to-day alone;  
They don't grieve o'er future sorrow,  
But are with the breezes blown.

I have a colony of those little stingless Cuban bees, mentioned by Rambler in his

visit to the postmaster, page 423. My convictions are that they are very worthless little creatures; for, while the other bees were giving 100 lbs. per colony, this colony gave four or five ounces—just enough to taste twice. The remainder I gave to a Cuban to put in his eye, as something had gone wrong with one of them, and the Guajiras county people claim wonderful medicinal properties exist in both the honey and wax of the stingless bee. I asked a druggist, and he stated that it was used for many purposes by the country people, but in reality was not worth much for anything. Still they keep it in stock to accommodate the trade. I therefore presume that its redeeming qualities are that it is harmless. It is milder in flavor than other bee honey, while the wax differs considerably, being, after rendering, gummy like propolis when warm. This wax has its peculiar odor, and never gets hard and brittle.

The little bee has no sting, but can bite real hard—so hard that they can easily, by a few quick bites, sever the head of an ordinary bee from its body if it comes nosing around to rob. When I took their honey I saw one of them dispatch three ordinary bees in short order. When they would come and start into their entrance, a hole the size of the base of an ordinary queen-cell cup, the sentinels would dart on to them, alight on their back, gather them by the neck, give two or three quick short bites, and off drops the robber's head, he not having an opportunity to use his sting in his defense. The little bee, too, is harder than an ordinary bee, while the queen seems much softer, being shorter than a common queen, and thicker through the abdomen, making her very clumsy and ugly. I have never found a drone among them, and don't believe they have drones. The comb is built with cells on one side only; and instead of being built vertically it is horizontal, the little bees' brood standing straight up. These pieces are circular, one ring of comb just a bee-space above the other, each layer smaller than the one below it, till the last, which is as large as a fifty-cent piece.

The brood seems to require about sixty days or more to develop from the egg to the hatching bee. Another peculiarity about these little creatures is that they never put brood in the same comb twice, but tear the comb to pieces after each batch of brood hatches, and use the material to build new combs of. They have no white comb—all is the same color (light chocolate).

The above-mentioned comb is for brood only. They store their honey in a separate and distinct manner; i. e., in little balls the size of a walnut, all piled in any old way around the brood-nest, each being partitioned off from the other. They gather pollen, also mix it into a sour mushy paste, storing in cells the same as are used for their honey. They seem to increase very slowly, and there are two colors of them as of our other bees—black and yellow. There are two swarms near me in a ledge



of rocks that I invite the Rambler over to help me get out, and he may take one of them home with him if we succeed. I have mine in a little box with a movable cover; and it makes me feel master of the situation, when I wish to examine them, to walk up boldly without smoker, lift the cover, and do to them as I please.

San Antonio de los Banos, Cuba, May 29.

## THE BEE IN LAW.

### Statutory Enactments.—Article 7.

BY R. D. FISHER.

1. *Preface.*
2. *Offense against Private Property; Unlawful Enticement of Bees.*
3. *Bees, Property in.*
4. *Bees, with Hives and Honey, Exempt from Attachment and Execution.*
5. *Poison—Exposing with Intent to Destroy Bees—Penalties.*
6. *Bees, Entering Premises to Disturb or Carry away—Penalty.*
7. *Prevention of Foul Brood among Bees—Michigan.*
8. Same, Nebraska.
9. Same, Colorado.
10. Same, California.
11. Same, Utah.
12. Same, Wisconsin.

#### 1. PREFACE.

It is the purpose of this article to supply in convenient form a digest of the whole body of statutory law concerning bees and bee-keepers. The code of laws for each State is supplied only by large libraries, and the wealth of material on most subjects is somewhat confusing. It has been said, "The difficulty is not so much to know the law as to know where to find it."

Our investigations during the preparation of previous chapters of this series of articles have led to the belief that it will be practicable to make a useful and satisfactory digest of the law providing for the propagation, preservation, and protection of bees and bee-keepers.

The concluding chapter is divided into such titles as seem capable of separate treatment. In so far as our investigations could discover, none of the statutory law referred to herein has been repealed.

A feature of the concluding chapter which seems worthy of particular mention is the collection of statutes providing for inspection of apiaries, and penalties. However, in this and other respects the work must speak for itself.

#### 2. OFFENSE AGAINST PRIVATE PROPERTY; UNLAWFUL ENTICEMENT OF BEES—PENALTIES.

Laws of Connecticut, 1882, Chap. 67, Central Stat. 1888, Sec. 1466, provide that every person who shall place upon the premises of another any tub, box, or other contrivance for the purpose of enticing swarms of bees from the premises of their lawful owner

shall be fined not more than seven dollars or imprisoned not more than thirty days.

#### 3. BEES, PROPERTY IN; DEPOSITS ON LAND.

Laws of Georgia, 1883, Chap. 2, Sec. 3074, Stat. 1895, provide that any deposit made by wild animals on realty belongs to the owner; thus honey deposited by bees in a tree belongs to the owner of the tree, though the bees may be hived by another; so the eggs and young of birds, or the increase of animals (bees), so long as they remain unable to leave the land, belong to the owner.

#### 4. BEES, WITH HIVES AND HONEY, EXEMPT FROM EXECUTION.

Statute of Vermont, 1894, Sec. 1805, provides that, among the goods or chattels of a debtor which are exempt from attachment and execution to satisfy a judgment debt, are three swarms of bees and their hives, with their produce in honey, provided the suit brought is not to recover payment for the purchase price thereof, or for material or labor expended on the same.

#### 5. POISON, EXPOSING WITH INTENT TO DESTROY BEES—PENALTIES.

Section 1247, Rev. Stat. Kentucky (Carroll), provides that if any person on land or premises not in his possession or under his control shall lay or expose any poisonous substance with intent to destroy honey-bees he shall be fined not less than five nor more than fifty dollars.

Same, Code and Stat. Washington, Sec. 7161 (Laws '97, p. 11), provides that it shall be unlawful for any person within the State of Washington to willfully or maliciously kill or poison any honey-bees. It shall further be unlawful for any person within said State to willfully or maliciously place any poisonous or sweetened substance for the purpose of injuring honey-bees in any place where such poisoned or sweetened substance is accessible to honey-bees within this State. Any person or persons violating said law shall, upon conviction thereof, be punished by fine of not less than ten dollars nor more than one hundred dollars.

#### 6. BEES, ENTERING PREMISES TO DISTURB, STEAL, OR CARRY AWAY—PENALTY.

Laws of Ohio (Rev. Stat. 1890 (S & B), Sec. 6840) provide that whoever unlawfully enters the premises of another for the purpose of disturbing or carrying away any box, gum, or vessel containing bees or honey, or injuring or carrying away any such property, shall be fined not more than five hundred dollars or imprisoned not more than sixty days or both (60 A. 5, Sec. 1, S. & S., 279).

Same, Laws of Nebraska, 1879, Sec. 81, provide that, if any person shall steal any hive, box, bee-palace, or other contrivance containing honey or honey-bees, the property of another, of less value than thirty-five dollars; or if any person shall steal honey from any such receptacle or other contrivance, or shall willfully and maliciously dis-

turb, injure, or destroy any of the aforesaid receptacles or other contrivances containing honey or honey-bees, or if any person shall steal, or by art, device, or contrivance, or in any manner whatever, decoy from any such hive, box, bee-palace, or contrivance any such honey-bees, with intent to convert the same to his own use, or with intent to damage or defraud the owner thereof, or by any art or device injure, damage, or destroy any such honey-bees by means of poison and otherwise, such offender shall be fined not exceeding one hundred dollars, and confined in the county jail not less than ten nor more than thirty days, and shall be liable to the party injured in double the value of the property stolen, injured, or destroyed.

#### 7. PREVENTION OF FOUL BROOD AMONG BEES.

(a) Laws of Michigan (Howell's Ann'd Stat., 1882, Chap. 62), 1881, p. 125, makes it unlawful for any person to keep in his apiary any colony of bees affected with contagious malady known as foul brood, and makes it the duty of every bee-keeper, as soon as he becomes aware of the existence of said disease among his bees, to forthwith destroy or cause to be destroyed by burning or interment all colonies thus affected.

(b) Wherever foul brood exists, or where there are good reasons to believe it exists, it shall be lawful for any five or more actual bee-keepers of any county of the State, to set forth such facts, belief, or apprehension in a petition addressed to the judge of probate, whose duty it is to appoint a competent bee-keeper of said county, as a commissioner, to prevent the spread of said disease and to eradicate the same; said commissioner to hold his office during the pleasure of the court; records of appointment and revocation shall be filed with the petition as a part of the records of the court.

(c) Upon complaint of any three bee-keepers in writing and on oath, to said commissioner, setting forth that said disease exists, or that they have good reason to believe it exists within said county, designating the apiary or apiaries, it is the duty of the commissioner to proceed at once to examine the bees so designated; and when satisfied that any colony or colonies of said bees are diseased with foul brood, he shall place a distinguishing mark upon each hive wherein exists said foul brood, and immediately notify the person to whom said bees belong, personally or by written notice, to remove or destroy said hives, together with their entire contents, by burying them or by fire within five days. In case no foul brood is found to exist in said apiary, the persons so petitioning, or either of them, becomes liable to said commissioner for the amount of his fees for such services.

(d) Any person neglecting to destroy or cause to be destroyed said hives and contents, after notice and time limited, shall

be fined not more than twenty-five dollars or by imprisonment not more than fifteen days or both. For the second offense the fine may not exceed one hundred dollars, or imprisonment more than 60 days or both.

(e) The commissioner is allowed two dollars per day for his services, and is paid by the county. But no fees are allowed unless foul brood is found.

(f) In all suits and prosecutions under this law, it is necessary to prove that said bees were actually diseased, or infected with foul brood.

#### 8. SAME, FOUL BROOD, DISEASED BEES.

(a) Laws of Nebraska (Chap. 3, Act 1885, Chap. 8a, Ann'd Stat. Neb., 1901), makes it unlawful for any one to keep or have in possession in this State, any honey-bees, brood-comb, or honey known to possess or to be infected with the disease known as "foul brood," or with any other infectious or contagious disease peculiar to bees or honey, or to keep or have in possession any bee-hive or other receptacle in which any foul brood, diseased bees, or infected honey is known to have been kept.

(b) *Destruction, Penalty.*—Any honey-bees, brood-comb, or honey owned or kept or found in this State, known to be affected or infected; and any bee-hive or other receptacle in which any bees, brood-comb, or honey shall have been kept, known to be, or have been infected as set out in section (a), shall be destroyed immediately and completely by burning. Any person who shall be the owner, possessor, or care-taker thereof, who refuses or neglects to immediately cause the same to be destroyed, as provided herein, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall pay a fine of not less than ten nor more than one hundred dollars, or be imprisoned in jail not more than 30 days for each offense.

(c) *Inspection.*—Every person owning or keeping honey-bees in this State shall cause the same to be inspected at his own expense, at least once a year in infected districts. This includes each and every brood or colony of bees, brood-comb, and honey in his possession or under his control, and the procuring of a certificate of such inspection showing the true condition of each and every one of the above-named articles in his possession as to the existence of foul brood or other infectious or contagious disease, in duplicate, one of which duplicates shall be left with such person, and the other filed in the county clerk's office, where such bees or honey or brood-comb is kept.

(d) *Treatment.*—If, upon inspection, the disease of foul brood or other infection or contagion shall be found to exist, and the inspector shall be of the opinion that, by proper treatment, such disease, contagion, or infection may be removed, he shall so certify officially in his certificate of inspection, and the owner or keeper of such bees shall be entitled to keep such bees for the



period of six months for treatment; and if not eradicated at the expiration of such time, such bees shall be destroyed as hereinbefore described; and any person having in possession any brood-comb, bee-hive, honey, or apparatus used in connection with bee culture, found in like manner to be infected, such person shall be allowed 30 days in which to disinfect the same; and if said disinfection shall not have been complete at the expiration of 30 days, such brood-comb, bee-hive, honey, or apparatus shall be burned as hereinbefore provided.

(e) *Penalty.*—Every person neglecting or refusing to cause all such bees to be duly inspected as provided herein, shall be deemed guilty of a misdemeanor, and shall pay a fine of not less than ten nor more than one hundred dollars for each offense upon conviction thereof.

(f) *Inspector, Pay.*—Upon the application of the Nebraska Bee-keepers' Association, or other person or persons interested in bee culture residing in any county of the State, the Governor may appoint a suitable resident inspector of bees and honey of said county, whose sworn duty it is to inspect all bees, brood-comb, and honey, within said county, when requested, and shall receive two dollars per day for his services, to be paid by the owner, agent, or lessee in whose possession such bees, brood-comb, or honey may be when inspected. Such inspector shall make certificates in duplicate as provided in section (c).

### WAX-PRESSES.

#### Some Interesting Experiments; an Open Letter to R. C. Aikin.

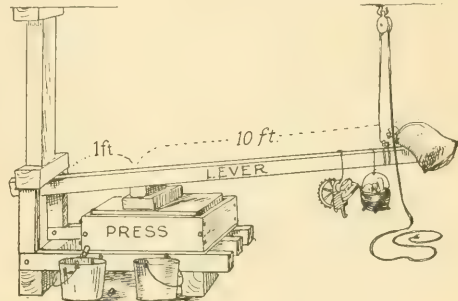
BY A. R. BOSTOCK.

I do not know whether the subject of artificial evaporation has died a natural death or not. If not, the "revolving solar" ought to be useful for that purpose. I believe a machine built on these lines would do as much work as one twice the size built the ordinary way.

#### LEVER WAX-PRESS.

Mr. Aikin advocates the use of a screw press to work the stuff over again that has been through the solar. I agree with him as to the need of a press, but I differ with him as regards the screw. Several years ago I had a lot of wax to melt for my neighbors. I built a screw press from the description given in the A B C of Bee Culture. It was the exact reproduction of Hatch's improvement on the Cary wax-press, except that I made my tray six inches deep, and had the spout right on the bottom, and in one corner. I found the screw most unsatisfactory. The wax would often press down on one side of the pan and not on the other. Then the side rods would bend, and the screw press sidewise, and strain the whole concern. Had the screw been built into a solid frame instead of a swinging

bar it would have been much more rigid, and better. As it was, I became disgusted with the whole concern. I slung the press to one side, placed the dish on a strong bench and fixed a strong lever over it. This was a sapling, giving one foot of purchase and ten feet of leverage. I then placed the hot wax in position, as described in the A B C book, and placed some large flat blocks of wood on top of the frames, and, last of all, a bit of 4×3 to receive the pres-



sure. The results of this plan were highly gratifying. As I was working single-handed I used to fill only two cloths with the melted wax—at the most three, as I did not wish the stuff to get cold. The lever was suspended by a cord just above its working position. As soon as the wax was ready I lowered the lever and the work started at once.

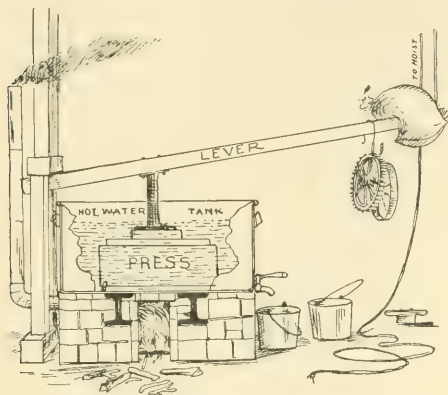
At first, when the wax is sloppy and full of water, the weight of the lever is sufficient. If I put on much weight at the start, when the cloths are full of water, I should only burst them. The hot wax rushes out of the spout very rapidly at first. In about half a minute I start to hang weights on the end of the lever—a little at first and more and more as the stuff gets firmer; and, last of all, I hang on a drum filled with old iron, or a bag of sand—a total weight of, say, 200 lbs. This on the end of a ten-foot leverage, with one foot of purchase, means a weight or pressure of about a ton. It would then be left until the wax ceased to drip.

The pumice that is left comes out pressed almost as hard as a block of wood. I have tried breaking up the cakes and boiling them over again to see if there is any wax left in them. I always found that there was none. It had all been extracted the first time.

I attribute this to being satisfied with two good cloths full, applying the pressure at once while the stuff was hot, and getting all the wax out before it was too cool to run.

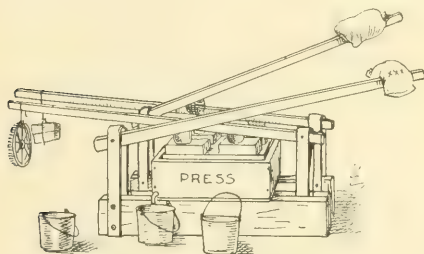
As the pressure forced out the water and wax, the blocks were always sinking, and the lever had to be raised once or twice to put other blocks under. I had several weights standing in a row, and each time the lever was moved I put on a heavier weight than the one I had taken off, and, best of all, I piled on the whole lot and left

them there. The pressure from a lever is steady; it never relaxes, while with a screw one must be always standing over it and turning, or else it soon gets slack. You can go away and leave a lever, but a screw can not be left; besides, I consider that I got as much strength out of that lever as I could have realized from several screws.



If I were building another press I should use four light handy little levers instead of one. Even with the lever, I found that the wax would sometimes sink on one side and not on the other, and give a lot of trouble. With four levers, one pressing down on each corner, the cheeses would have to keep level; and the levers, being light, could be raised one at a time for slipping blocks under, and no weights need to be removed; also while one is being raised the other three are all the time exerting pressure.

Mr. Aikin wants a press to be entirely submerged. I see no occasion for it at all. There is no need of releasing a screw from time to time to let the water through the pumice again; for if the wax is hot enough (I put mine in boiling), and sufficient pressure is applied, it will all come out the first time. If the tray is set a little on a slope,



and the spout at the lowest corner, the wax will all run clear off out of the way. With a submerged machine I should think it would be a great job to get all the melted wax off the top of the water; and if it were not all taken off some would be wasted by sticking to the cloths as the pumice was withdrawn.

However, if one still desired a submerged press he could have a framework of iron

around the outside of the boiler, and have iron levers hinged on to a bar round the top, and an iron leg from each lever, reaching down through the water, and resting on the press below. There would then be only the iron legs for wax to stick to and a fire could be built below the whole concern; but, as I have said before, I see no occasion for a submerged press.

And now, best of all, I wish to say that I do not desire to belittle Mr. Aikin in any way. He is a practical apiarist, and knows what he is talking about, while my writing has been mostly theory. Still, he plainly states that he desires more information on the subject of wax-presses, and apparently so do many others who attended the convention at Buffalo. Therefore my suggestion of levers to replace a screw may not be altogether lost.

As I wrote the last sentence the thought occurred to me that if the dish or tray were made with high sides, say 12 or 15 inches high, and a plug placed in the spout, boiling water could then be poured in as the cloths of wax were placed in position, and a lot of layers could be got in as the water would keep all hot; so that twice as much could be done at one pressing.

As soon as the lever pressure is applied the cork could be withdrawn and the whole of the hot water would rush straight out into a tub placed to receive it. This, being hot, would not need much more heating to be ready again for the next lot, and there would not be much wax in this lot; and what little there was would not be wasted. A little wax would stick to the wooden blocks, but that would be no loss; for what stuck one time would melt off the next, and all would be got at the finish. Yes, if ever I build another press for myself I will build it this way, and so keep the wax hot; so it may be, that, after all, I have supplied Mr. Aikin with just the design he has been looking for for a long time.

Fernhill, Napier, New Zealand, Apr. 22.

[After reading this article in manuscript I had our artist make some engravings, so that the reader might more clearly understand. My brother and I have been testing various forms of wax-presses, but are not ready to announce the results; but we have gone far enough to show that there is a great deal of truth in what Mr. Bostock has to say. I am not sure but a lever has one advantage that a screw does not have, because, when a weight is put on the long end, a *continuous* pressure is applied; and as fast as the wax runs out of the slumgum, more squeeze is put on automatically. This is not true in the case of a screw. But there are objections to a lever; and in an article which I will give later on I will state what these are. But for the present we have determined that our wax-press is nearly right, although we see room for some minor changes in the way of increasing its convenience as well as its power to squeeze the slumgum.—Ed.]





## A CORRECTION.

AN unfortunate mistake occurred in A. I. Root's article "Bee-spaces, etc.," on page 550 of our last issue. In referring to the Danzenbaker hive he is made to say this: "The only thing that worries me about this hive is the fact that they are not all as perfect as this, and interchangeable." The sentence should read, "The only thing that worries me about the new hive is the *fear* that they are not all as perfect," etc. The word "fear" was mistaken by the printers for "fact."

## HONEY PROSPECTS.

UP to the first week in July the reports over the clover belt were very unfavorable. The weather continued rainy and cold, and that left the hives without any honey. It looked as if the weather would continue so, clear past clover and basswood. But a sudden change took place along about the second week of this month. It turned warm, the rain stopped, and in some localities the basswood honey poured in. In others, white clover yielded well. While the reports up to July 1, and even for a week after, were very discouraging from all sections of the country, there has been a decided change for the better. It is too early yet to say whether there will be a general honey crop throughout the clover and basswood belt. My belief is, after reading hundreds of letters, that some sections will yield honey while others will have a bare crop.

From a private letter received from Arizona, from one who is in position to know, we learn that the weather, even for Arizona, is exceptionally warm; and unless something unusual happens the honey crop will not exceed ten to twenty per cent of an ordinary year. The probabilities are that there was not enough snow in the mountains to give sufficient water for irrigation during the growing time of the year.

Two or three letters from Colorado indicate that the season in that State will not be as good as usual. Some estimate half a crop. Southern California, from the very latest advices, is not going to make very much of a showing. It appears that there will be a scarcity of Western honey, no matter what the clover belt may develop.

## DR. GANDY'S ARTICLE IN THIS ISSUE.

SINCE the receipt of Dr. Gandy's article, published elsewhere, I have talked with quite a number of bee-keepers regarding it. Most of them show by their faces that they doubt some of the statements. Still, nearly all of them have said that a large acreage of sweet clover and catnip would produce some wonderful results. If we stop and

think a minute we shall not think it any thing strange if a colony in three weeks, on clover, will store 100 lbs. of honey. Suppose that that same colony, twice or three times as strong, could have *three months* of honey weather. Would it be any thing strange if it produced on an average 400 lbs.? Would it not be remarkable if it did *not* do it? Perhaps we bee-keepers of later days have not exploited the value of artificial pasturage and strong colonies as much as we might. And that reminds me that Dr. Gandy, in a letter lately received, says:

The hive I use is the plain Langstroth, or plain hive with L. frames, or L. size. I use both Dovetailed and home-made hives.

I dislike to parade before the public, especially in a bee journal, my wealth; but this is done to show that one with means can afford to handle bees. I have no sweet-clover nor catnip seed for sale, as I usually sow all I can gather. I intend to sow 100 acres this fall to catnip. Last season, on account of the drouth, the seed did not mature well, and I gathered only a few bushels. It will pay for sowing for a honey crop on \$100-acre land, as an acre will produce fully \$30 worth of honey, and perhaps more. J. L. GANDY.  
Humboldt, Neb., May 17.

I can only suggest to our readers that they read and ponder his article; and, instead of saying "impossible," "absurd," "ridiculous," wait. Time will shed further light. I don't understand, myself, how the doctor can maintain a price of 15 cents on comb, chunk, and extracted; i. e., I don't understand why the bee-keepers within a few hundred miles of him would not pour their extracted on him in such train-loads that he would be ready to say "enough."

## THE WET AND COLD JUNE OF 1902.

WHEN we were having such cold wet weather, and when the rains and cold weather continued beyond what the oldest inhabitant ever "hearn tell of," we began to think it was something remarkable—remarkable also because it was killing the honey business. In the Cleveland *Leader* for June 30 appears an item that I am glad to place before our readers. Evidently the writer, Mr. Hyde, knows what he is talking about.

"The week ended Saturday was the coldest week for this season there has been in Cleveland for forty-seven years," said Chief Engineer G. A. Hyde, of the Cleveland Gas Light and Coke Company, who is an enthusiastic meteorological amateur. "I have been keeping daily records of the weather for 47 years, and my records go back further than any others in Northern Ohio. The United States weather-service records go back only about 30 years.

According to my records I find the interesting fact that there has not been a period of seven days ending with the 28th of any month of June during the past 47 years that was as cold as the week just ended. The average temperature for this last week has been about 59 degrees, and that is about two degrees colder than for any like preceding period in June. The month has also been a remarkable one for rainfall. My records cover rainfall for 47 years, too, and they show that only twice in that time has there been a June in which there was so much rain as during the present month. Up to to-night there has been an aggregate rainfall of 9.88 inches for the month, and that has never been exceeded during any month in the 47 years, with the exception of one July, when 10.48 inches fell, and in June, 1857, when 10.38 inches of rain fell during the month. This June is not over yet, though, and there is a possibility that the rainfall for this month may exceed all records for Cleveland, or at least all the records for years for which records have been kept."

OUR 1000 HIVES OF BEES AND FOUR YARDS.

It may surprise some of our readers to know that the publishers of this journal now own and operate 1000 hives of bees. I do not mean to say that all of them are what we call comb-honey colonies. About 600 of them are on four, six, and eight frames, for queen-rearing—not strong enough to store comb honey. The rest of them are in twelve-frame Langstroth, ten-frame Jumbos, ten-frame Danzenbaker, and two-story eight-frame Dovetailed hives. We have three out-yards, and we expect to make another soon. All four of our yards are on the line of the electric railway, so that our men, by paying five or ten cents, can reach any yard inside of about fifteen minutes from the home yard.

With the work of revising the A B C book, getting out eight extra pages of our journal, and handling my general correspondence, and spending two hours or so a day among the bees, you can imagine that, just at present at least, "yours truly" is having his hands full. But I am gathering a great deal of valuable experience, as well as testing some new ideas that have been recently advanced. Our readers will be given the benefit of them in these columns during the next six months.

#### NEW EDITION OF THE A B C OF BEE CULTURE UNDER WAY.

WE are hard at work on a new edition of the A B C of Bee Culture. It seemed after the last edition was out, about a year ago, that we would not run out again for three or four years, for we printed 8000; and even if we did get out we thought we should only have to make a reprint; but so rapid has been the advancement in bee culture, and so many new kinks have come up, that the A B C book is again receiving an overhauling as before. This does not imply that the previous edition was carelessly or hastily compiled, but simply that, within twelve or fifteen months, any publisher of a bee journal will run across a great many valuable ideas. For example, during this time there has been an extended series of articles on bottling honey, and many new and valuable ideas have been given. Obviously, we could not very well afford to get out a new edition of a book like the A B C and skip this important subject that had never been thoroughly exploited in any work before. Take another example. During the last year and a half we have learned much about methods of rendering wax *under pressure*. The Root Co. has been making some extended experiments. The result of all this is that much of value has been learned, and will be given to the public, not only through these columns, but through our A B C book. Still again, my extended travels through our western country among the bee-keepers has shown me how much *locality* has to do with conditions, and how it must necessarily modify all bee-work. I have taken this factor under consideration

in the new revision, so that I hope the A B C for 1903 will be better adapted than ever before to all parts of the United States. Our friends who are thinking of getting a copy will do well to wait till the new edition is out, which, we hope, will be some time in December.

#### THE EDITOR DEFIED.

YES, last night, July 9, he was defied, and for a while he began to fear he was knocked out—not by man, not by b-b-b-e-a-s-t, but by *bees*. It was just after a heavy thunderstorm. It had been very warm all day, and the bees had been having a gala time on the basswoods. I had driven out to the south yard and lighted my smoker and put on my veil. I was putting supers on such hives as were crowded for room. With my usual caution after such a storm I blew smoke into the entrance of one hive, removed the cover, and was about to pull out a frame from the brood-nest. It was toward dusk or I should, perhaps, have noticed that a lot of bees were standing high up on their legs, nervously twisting this way and that, ready for an onslaught. At all events, the onslaught came. It being very warm, as before stated, I had nothing on but one thickness of clothing, and linen trousers at that—a fact those bees were not slow to discover. Unfortunately I had hung the smoker on one side of the hive, and that was the only smoker in the yard. I reached for the weapon. Oh, no! they had possession. I retreated a few paces, and waited for them to calm down. The minute I showed myself again, out they came like hot shot, up my sleeves, and wherever my thin clothing touched me they were sure to find the spot. I retreated again, and waited for them to "cool off." Again I showed myself, with the same result. "Well, now," said I, "I have never been conquered by a colony yet. If I can get hold of that smoker I will see who is boss." But the minute I got anywhere near the hive to get my weapon, that moment they would rush out. I finally got behind a big apple-tree which was conveniently near, and with a long screwdriver I reached the point of it into the nozzle of the smoker, and quietly lifted it off the hive. Didn't I work up a big smudge? and didn't I give 'em fits? I smoked them at the entrance. I smoked them at the top, I made them fairly howl for mercy, and then I was boss.

It is a little humiliating that one who is preparing a ten-thousand edition of a five-hundred-page bee-book, and is supposed to direct the destinies of the readers of a bee journal, should be cowed down and conquered in such an inglorious style by a *few bees!!!!* It was fortunate for me there was no Rambler around to take in the situation with the camera.

Say—I was rubbing stings out of my arms all night. I was stung so much I did not really know where I had been hit until an itchy spot would remind me there was, may be, a sting located thereon.



## NOTES OF TRAVEL.

R. A. Holley and John H. Martin; the Editor and Rambler in California.

BY E. R. ROOT.

After visiting Mr. J. F. McIntyre in his Sespe apiary home I visited Mr. R. A. Holley, a former student of Mr. James Heddon's, and who is now located some four or five miles from the McIntyre bees. I found Mr. Holley pleasantly situated in the valley, with mountains on either side of him. In the evening Mr. McIntyre came over, and we had a little unconventional convention, the main topic of our discussion being long-tongued bees. I will not attempt to go through the details of the discussion, but simply record that we arrived at the conclusion that such bees would be very desirable in California with the flora as it now exists. Mr. Holley owns and operates some 450 colonies, in two yards. He was doing the work alone with the help of his sister.

Before leaving I asked Mr. Holley to step out in the front yard, as I desired to take a picture of him with those magnificent mountains for a background; and here he is as taken with my little pocket kodak.

He seemed to be a thoroughly competent bee-keeper—one whom it is a pleasure to meet. While he does not have wheels in his head exactly, he has in his head an extractor or on the reversible automatic principle that



R. A. HOLLEY.

will extract two sets of combs, one in front of the other. In other words, his extractor

would have double pockets on the Coggs shall plan, with a sheet of tin between, but with this difference, that the machine would be reversible. He hopes in time to develop the idea into a working model. But of this we shall possibly hear later.

After leaving this beautiful valley, far famed for its honey resources, I went directly northward into Central California, and called on Mr. Madary, at Fresno, who seemed to be the leading supply-manufacturer for that portion of the country. Mr. Madary is very favorably located for lumber, and his hives are made of sugar pine—a grade of lumber that is very much like the ordinary white pine of this part of the country.

After leaving Fresno I took a short run up to Reedley. I had not notified Mr. Martin just when I would call on him; but, sure enough, he was at the station waiting for me. It had been just ten years since I had seen him; and instead of the sprightly



RAMBLER AS HE GREETED THE EDITOR.

down-east Yankee, as I had last seen him, he was then a typical Californian in his 62d year, well preserved, and very much of a Rambler still. As soon as we exchanged glances, for it was a little difficult for either of us to make sure we were making no mistake, I walked up to our old friend and asked him if he could direct me to John H. Martin, and a smile of recognition greeted me as he peered through several shades of tan. The cut at the bottom of the previous page shows how he appeared.

A good many have asked if it were really a fact that the Rambler was a real flesh-and-blood chap from down East—if it were true that he had striped pants and went around on a bicycle carrying an umbrella and camera. My kodak shows him just as he was, standing before his bicycle, dressed up to meet "distinguished (?) company." Ordinarily he would be accompanied with that everlasting umbrella, I suppose. I kept my camera ever loaded to snap it at him; but, no, sir; he didn't propose to be "shot at" promiscuously; but I hit him just the same.

I will explain that Mr. Martin owns a bee-yard near Los Angeles; but poor seasons for several years had induced him, through the earnest solicitation of Mr. J. C. McCubbin, of Reedley, to go up into

Northern California where there is a honey-flow every year, and manage Mr. McCubbin's bees. A bargain was struck, the result of which was that the Rambler had been working his own bees on shares, and managing the bees of another man.

Mr. McCubbin is a bee-keeper a good deal after the style of Mr. Coggsball, in that any kind of old hive, so long as it will hold bees, will answer his purpose almost as well as something better. In spite of the fact that the McCubbin hives would pull apart, Mr. Martin has managed the bees successfully, occasionally making a ramble among the bee-keepers of that section of the country; and Mr. McCubbin, too, when he had time to devote, made 220 colonies in those old hives give him *25,000 lbs. of comb honey in one season.*

Our friend had the misfortune to lose his wife a few years ago. At the time of my visit he was keeping bachelor's hall, having the occasional company of Mr. Martin. Two little children were left to Mr. McCubbin, and these had become greatly attached to "Uncle John." It was Uncle John this and Uncle John that. In the next picture will be seen Uncle John, his little nephew, his little niece, and the ever present bicycle. It was with much difficulty that I could get my friend to stand for



RAMBLER AND THE M'CUBBIN CHILDREN.



a picture, but he finally consented for the children's sake.

I shall never forget the enjoyable time spent at the home of Mr. McCubbin, and how I ate apricots to my full. While I enjoyed being at the McCubbin home, I wanted to see just how Rambler "bached it." Two or three times I hinted that I should like to see his quarters; but he turned the subject until finally I told him I was going to see his bachelor quarters, eat Rambler flapjacks, and that he might just as well submit to the inevitable. To make a long story short, we did visit his ranch at one of the McCubbin out-yards, a glimpse of which we showed last year, and which I now reproduce. The tree in front of which Mr. McCubbin and his two children sit I saw, and know that the statement made under the picture is not far from correct. The little cabin, in close proximity to a delightful overspreading fig-tree, on which were black figs, was the home of the Rambler,

where he was baching it alone, wrote his articles, and took care of the bees.

I hung around the kitchen while Rambler was going through the sleight-of-hand act, lifting the batter of dough after it had been nicely browned on one side, and giving it a twist and a whirl so it would come down kerslap precisely on the same spot from which it had been so deftly elevated, but the other side up. But there was a big family of us that day—Mr. McCubbin and his two children, the Rambler, and myself, and well do I remember how the sweat rolled down the Rambler's face as he slapped down those cakes, one after another, and finally asked if we did not suppose we had had enough. Out under the before-mentioned fig-tree Rambler put his spread, to which we all sat down and ate with a relish. Really I do not see what he needs of an "esposa," for I assume he can cook as well in Cuba as in California.

Just over his bed, in the little cabin before mentioned, was a picture of the father and mother, and of the wife of his younger days. To me there was something sad and almost pathetic in Rambler's face when I asked him if that was a picture of Mrs. Martin. For all we have joked him these years about his being an old bachelor, and all that, the picture of the sweet face on the wall revealed that there was a dear one who won his heart years ago, and she was still dear to him, notwithstanding she had been dead these many years. Possibly I ought not to mention a matter so sacred to the one now living; but I believe our readers should know that our friend who has shown so much light-hearted jollity in these columns has his serious side as well as a not-to-be-forgotten sorrow. No wonder we see in all his writings, tintured with so much of the pleasant side of life, evidence every now and then of "the tie that binds" him to the last home from which he will wander no more. Often I have thought since then of the Rambler in his lonely home; but have always been comforted by the feeling that his hope in the beyond gives him peace and happiness, notwithstanding earth's best friend is temporarily absent from him.

I omitted to state that the eucalyptus is an important honey-bearing tree. It is a rapid grower, and furnishes delightful shade. It is almost indispensable in some localities in California. Some species of eucalyptus, known as gum-tree, grow to the height of over 400 feet.



EUCALYPTUS-TREE PLANTED 12 YEARS AGO, NOW 85 FEET HIGH AND 3 FEET IN DIAMETER.

## RAMBLE 206.

## A Visit to the Hochstein Bee-yard.

BY RAMBLER.



John Bunyan and his allegories have been upon my mind of late, and I have been especially impressed with the allegory of people who see so many fierce lions in their paths, but, getting close to them, they are chained and harmless.

It is about the same with the alligators. They are very fierce to terrorize, and sometimes people allow the alligator of hatred, malice, and envy to take possession of them. But I had no such motive when I created that alligator in the last Ramble. I merely wished to show Bro. Howe that there are other lightning operators in Cuba, and to get even with him for reflecting upon my wheel-riding.

See GLEANINGS, page 110. And now that he has been suspended by that alligator for a couple of weeks we will turn our attention to another trip with our jolly friends.

When out with Mr. Somerford I mentioned meeting Mr. Hochstein; but since that brief call he has moved back further into the wilds of Cuba, and it was to his new location that the Harrys proposed to conduct me. We started with some doubts of finding Mr. Hochstein; for to reach him we were to ride over innumerable cow-paths and by-roads. For several miles it was mighty rough but plain traveling; but ere long the cow-paths became more numerous and diverging. Then if the two Harrys agreed upon which road to take there was

scarcely a halt. It was jolt, jolt along. But if they disagreed they had a brief and novel way of deciding the matter. Dismount. Hands into pockets. A coin. A flip. Heads or tails. You win—go ahead. Why, I never in my life saw such a quick and easy way to travel—lightning operators, you know; and, remarkable to say, it was no blind guide, for we went straight to Mr. Hochstein's.



AMERICAN TRAMP AND THE RAMBLER;  
HOCHSTEIN'S APIARY.

When a mile or more away we saw Mr. Hochstein's tents close up against the mountains and surrounded with a setting of noble palms.

Mr. Hochstein is a bee-keeper of much experience; and before coming to Cuba he had bees and oranges in Florida. A freeze killed his trees, and led him to emigrate to Cuba with his family and bees. Mr. Hochstein is quite an enthusiast upon the bee subject, and has occasionally written over the *nom de plume* of "The American Tramp."

Mr. Hochstein's new home is located upon a little plateau overlooking the valley, and to the rear is quite a pretentious mountain. A nice stream of water flows near his tents, and there is enough volume and force to be converted into power to run machinery if there is ever need of it. The two Harrys and I thought Mr. Hochstein had an ideal location; and with his experience we predicted that his yields of honey will be large.

Mr. H. seemed to think so too, for he had purchased a *caballeria* ( $33\frac{1}{2}$  acres) of land, and orange-trees were already being planted.

The natives termed the country about him as *cielo* (heaven), and the lowlands *mal país* (bad country). Mr. H. was quite delighted to find himself between the two, or in purgatory, as he expressed it. In order to get to his *finca* (farm) oxen are used, and one of those immense two-wheeled carretas. Some of these carretas weigh a ton, and nothing can draw them better than the patient ox; but it seems a species of cruelty to tie their heads firmly into those yokes. All of Mr. H.'s moving of bees, household goods, and honey, is done



TILLING THE SOIL IN CUBA.



with an outfit much like the one represented in the photo. They are in universal use in all of this back country.

Mr. H. brought his bees from Florida, in Heddon hives; and though he likes the hive and system of management, he finds that the humidity of this climate causes the frames and thumb-screws to swell and hold the frames practically immovable, and for this reason he was using the regular L. hive for his increase, and proposed to change the Heddon into L.

We discussed the possibilities of improvement, and came to the conclusion that quite a change was necessary in order to adapt the hive to Cuba. I predict that such changes will be made.

At the time of our visit the bees had just been moved; the binding-strips were not taken from the hives, but the bees were roaring, and working on the bellflower. In addition to that the range has romerea, cat-claw, palm, and much other flora.

Mr. H. is one of those bee-men who do not believe in wiring combs, and showed us several sound new combs that had been jolted and banged in the carreton in moving, and they were not broken. I have noted this matter before among bee-keepers, and am inclined to think there is much useless wiring in a majority of cases.

Mr. H. thinks his apiary is in good working order when he can take a bocoy (100 gallons) of honey from 280 combs, or 1000 gallons from 200 colonies at each extracting. At the time of our visit the apiary contained the above number; and as there is nothing small about Mr. H. I have no doubt he will double that number during

the coming season, and I have no doubt he will have the prevailing Cuban-American idea of an increase to thousands. And here is a point we discussed: While so many are getting their thousands of colonies, the bee journals are conducted for the man with a dozen or a hundred or two hundred hives. A person visiting these large bee-keepers necessarily feels the spirit of a larger bee-keeping, and nowhere is this more manifest than in Cuba.

Another matter that struck me as peculiar was the cheerfulness and contentment of the lady of the house; for Mr. H. has a helpmeet, and two children grown to the dignity of young people. When at Mr. Somerford's I thought the "Mrs." there a very contented woman; but Mrs. Hochstein is still more isolated, and seems to be willing to leave all of the refinements of town and the pleasure of meeting friends often in social intercourse, and to live contentedly in this secluded place.

I noted, however, that the family kept in touch with the outside world through a number of our popular magazines and papers.

There was ample evidence of Mr. Hochstein's prosperity; for while we were there the oxen and carreton brought in a load of lumber for a new house, and at this writing the family are occupying it. I have also since learned that the yield of honey from the 200 colonies was very satisfactory to the owner.

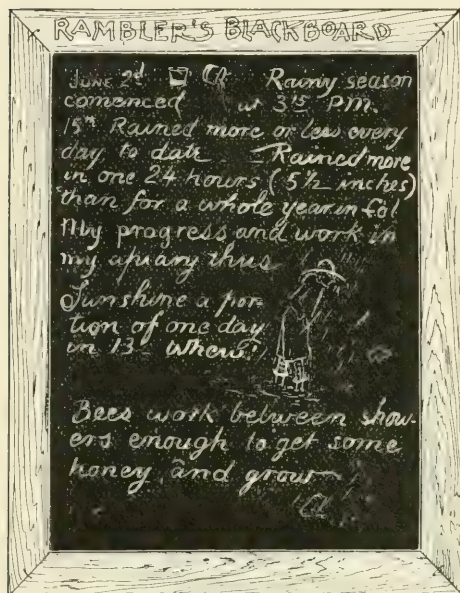
The "American Tramp" and the Rambler posed for a photo near the apiary; and Harry Beaver, who was the only one that day who carried a camera, made the expos-



CARRETON AND OXEN READY TO MOVE BEES.

ure. The apiary is nicely shaded by young palm-trees. There are several other apiaries within a few miles of Mr. Hochstein, and the pasturage seems to be well occupied.

Upon our return to Artamisa we came by a new route. The chief feature on the way was some extensive fields of sugar-cane. There is either a written or unwritten law that calls it trespass for any one to cut even one stalk from a field before the harvest commences; but when the hands are in the field cutting, any one can take and eat, and some of the people chew a great amount. This is indeed a land of sweetness.



Another attractive feature on our route was the native method of tilling the soil with the patient ox and Cuban plow. This photo of Rafael and his oxen and his goad was taken near the Howe residence. All of the land for buneatas (sweet potatoes) is prepared in this way, and the bee-keeper is directly interested; but I have a strong suspicion that Rafael was preparing that land for tobacco.

Upon the whole we had a very interesting journey that day, and I noticed that the Harrys attacked their supper as only well-worked young men can.

May 26.—I note what Bro. Hochstein says on page 439 in reference to green honey. I merely stated what I had seen in the honey line up to that date. It seemed to me that, for table use, there was not care enough taken to cleanse the honey properly. I also learned from Bridet & Montros, honey-dealers, that they received much thin honey. I am not prepared to say where it came from; but as all the Cuban liquid honey goes to Germany to be used for manufacturing purposes it might as well be sour, and have

some specks of comb and a few bees in it as any way. I could refer Mr. H. to a bocooy or two of honey that was sent to the States to be sold for table use; but even such an expert salesman as Niver could not dispose of it. Was it in the flavor? or was it too green? The Rambler can not say. As to Mr. Brown, of Tulipan, and his yield, the honey season was not ended, and how could I be explicit? Bro. Brown, please tell us all about that colony. I fear the "American Tramp" is allowing the alligator Envy to sway him a little.

But let me tell you I learned the other day how many bocoys of honey Mr. Hochstein has taken from his 200 colonies. It was away up, and shows Bro. H. to be an expert bee-man. I suppose I should be precise to state the number; but if he was touchy on April 21, before the birth of the new republic, what is he now after the 20th of May? I am clearly in a quandary. Guess I will let the American Tramp make his own statement. Adios.

#### THE MOST WONDERFUL BEE-KEEPER IN THE UNITED STATES.

Some Remarkable Yields; what can be Done with Artificial Pasturage; Double-decker Strong Colonies.

BY J. L. GANDY.

[Some time ago I promised to place before our readers some information regarding one of the most extensive bee keepers in the United States, and perhaps in the world. He is comparatively unknown to the readers of bee-papers, and yet he has made more money with bees than perhaps any other man living. I am glad to introduce to you Mr. J. L. Gandy, of Humboldt, Neb., one who has made as much as \$5,000 from bees in two years. This seems like a fairy tale, but there is a great deal more that seems almost as wonderful, so much so that what he has done seems almost incredible.

Seeing some accounts in the papers regarding the remarkable achievements of this man, I finally wrote to some resident bee-keepers and found the accounts were reasonably correct. After some correspondence with Mr. Gandy himself, a person who, I find, rather shirks from publicity, I finally secured a promise from him of an article relating his experience with bees, and how he managed to secure such wonderful results; and that is largely accomplished by artificial pasturage. The first installment, together with a portrait of Mr. Gandy, is herewith given.

J. L. Gandy, son of Dr. O. Gandy, was born November 3, 1844, in Preston Co., W. Va. With his father he removed to Allen Co., Ind., in 1851, and lived on a farm until 1862, when he enlisted in Co. A, 30th Ind. Vol., Captain (afterward General) Lawton's company, who was killed in the Philippines. After serving three years he returned home and finished his medical education at University of Michigan and Rush Medical College, Chicago, where he graduated. He then located in Mills Co., Iowa, remaining a year, and then removed to Nebraska, where he has resided ever since. He is a practicing physician, merchant, and is engaged in many other enterprises; but the most important in a financial way is bee culture. He has kept bees for thirty years, and intends to continue in the business. He is the man who brought catnip prominently before the public as a bee-plant. He also advocates the large hives.

Some things he says seem to be too wonderful to be true. Well, here is his story:—Ed.]

I give herewith some ideas obtained during my thirty years' experience as a bee-keeper, the last seventeen of which I have

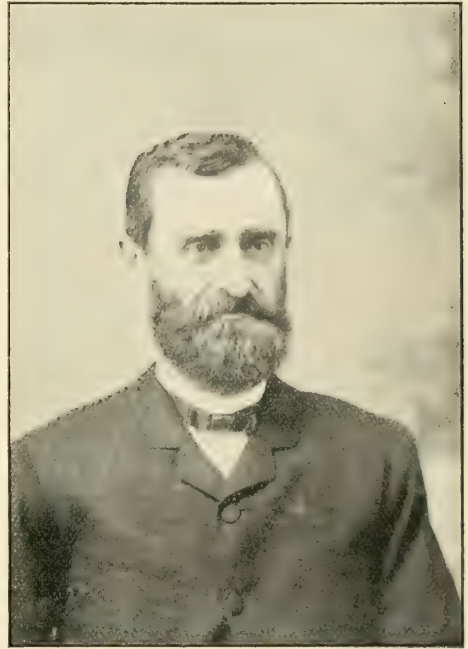


handled them as a commercial pursuit, keeping during this time from 500 to 3000 colonies, 100 of them being in my home apiary, of which I will more particularly write. During the thirty years I have experimented with about all kinds and sizes of hives, and will give my observations more on the line of hives and some points of management wherein I differ radically from the average bee-keeper. At the outset I wish it understood that I have no hives for sale, and am writing simply as a bee-keeper.

I claim by my method of handling, of which I can describe only some of the principal features, bees may be made to produce double the ordinary surplus and perhaps more. I assume that the reader is a bee-keeper who has plenty of nectar-secreting plants in his neighborhood—as any section can be made a good place for bees at an expense of \$60 for catnip and sweet-clover seed, and this sum is less than the profit I derived from a single colony last year. Much of this increase is attributable to the plants; but I am confident that my particular methods helped largely to bring about the greater yield.

These methods I advocate are for the use of the up-to-date bee-keeper; the lazy, careless operator will be in no way benefited by changing. Usually a man successful in other pursuits will be a successful bee-keeper, while he who fails in other pursuits will be as likely to fail with bees. Knowledge and industry are absolutely necessary in apiculture, and one should not attempt the handling of even a few colonies without studying a good text-book on bees, and subscribing for and reading at least one reliable bee journal. One reason for this is that the bee industry is in its infancy, and many

important discoveries are being made from time to time. The importance of this advice can not be overestimated.



J. L. GANDY.

Many will doubtless wish to know what I consider constitutes an up-to-date bee-keeper, and I will, therefore, give a pen



ONE OF THE GANDY OUT-YARDS.

picture which I hope will reveal some of the characteristics of this only too rare individual. You make your visit in June, and long before you reach his residence you will find all roads thickly set to sweet clover and catnip, the fragrance of which has attracted the bees who are flitting industriously about among the sweet-scented blossoms. Upon arriving at his home you will find him busily engaged in putting on supers and hiving swarms; but he will find time to greet you warmly, and will evince great delight in showing you through his apiary. You will find his family enthusiastic on the subject of bees, and at the dinner-table you hear much of the blessings of apiculture, which enables the family to purchase all household necessities from the sale of honey. The host will tell of having twenty-five acres of sweet clover, which he cuts for hay, and the same acreage of catnip, which will enable him to keep 300 colonies instead of the usual 100. From the product of these colonies he hopes to be able to purchase the next season an adjoining \$10,000 farm.

It is not necessary to describe the lazy, careless bee-keeper, as he is well known. If he would devote the time he now spends in writing to the bee journals of his fail-

ures, to the sowing of sweet clover and catnip seed he would be much more useful to the community. He will tell you that he does not take a bee journal, for the reason that his bees do not pay, and he can not afford to, not realizing that one of the main reasons why they do not pay is his own lack of knowledge in handling.

When I started bee-keeping on a large scale my neighbor bee-keepers did not average a surplus yield of over 50 pounds per year to the colony. I immediately set about improving the bee pasture, and my average yield of surplus for eleven years was 150 pounds to the colony, and for the last six years it has been 300 pounds.

My increase has always paid all expenses, including 10 per cent interest on the investment. I produce chunk, extracted, and section honey, and sell all at 15 cents per lb. in this and neighboring towns. My net profit for eleven years was a little over 400 per cent, and for the last six years it was a little over 800 per cent. Last year my home apiary, of which I am now writing, 75 colonies (spring count), gave me 407 lbs. to the colony.

Some may wish to know how I came to go into the bee business. For their enlightenment I will state that, about seventeen years



J. L. GANDY IN HIS HOME APIARY.



ago, by financial reverses I became indebted \$25,000; and as misfortunes never come singly, my health also failed until I thought I could not follow my professional pursuits longer. With a view of regaining my health and paying these debts I re-embarked in the bee business, in which I had had enough previous experience to be certain of good results. So in 1884 I began by the purchase of all the bees I could get, paying therefor from \$1 to \$10 per colony. By increase and other purchases, by 1890 I had 500 colonies, and 2000 in 1895, keeping on until 1898, when the colonies numbered about 3000, nearly the number I now have. By 1892 I had every dollar of my indebtedness paid out of the profits from my bee industry, and since that time I have invested the profits of this branch in farms, averaging in price from \$5000 to \$12,000, as the profits for each year. Last year I purchased \$40,000 worth of land, and \$15,000 of this amount came from the sale of honey and bees. All the land I purchased prior to 1898 has more than doubled in value, while that bought since has advanced fully 30 per cent, and has paid in rent, since I owned it, fully 8 per cent. I now own 20,000 acres of fine farm and fruit lands, which, at a fair valuation, is worth \$60 per acre, besides large tracts of wild lands in Dakota, Texas, and Kansas, and considerable city property. None of it is for sale, as most of it pays a fair interest on a much larger price. Now it may be seen why I am in the bee business. I have regained my health, and will continue handling bees right along.

But, to return to the real subject. The first eleven years I used small hives of various patterns; but for six years I have used nothing smaller than a ten-frame plain hive. For surplus I use one hive above another with empty combs, for extracted honey. For chunk honey I use the thin brood foundations wired. I use no honey-board, queen-excluders, nor separators, but allow the queen to breed wherever she desires, and in that way get fully four times as many bees as you get in the eight-frame hive where a queen-excluder is used. Bees, even in an eight-frame hive, generally use the two outside frames on each side of the hive for honey and pollen, and this leaves but four frames for brood-rearing. This, I claim, will not produce one-sixth as many bees as the colony should contain. I went through a colony having on six ten-frame hives last summer, and it had brood in 32 frames. That hive produced over 500 lbs. of surplus, while the same colony in an eight-frame, with a queen-excluder used, would not have produced to exceed 100 lbs. of surplus. A queen-excluder will exclude the queen, and will also to some extent bar or greatly hinder a well-filled bee. By using drawn combs we have very little use for separators. I don't use them; and when I occasionally run out of drawn combs I resort to foundation; with drawn combs bees will make about twice

as much honey as with foundation. I was induced to use large hives by some circumstances which I will relate.

I helped a man cut two bee-trees seven years ago, where the bees had been occupying the trees for four years. He was certain when they went into the trees, for both stood in his yard. Both had the space in the trees full of honey, giving us 517 and 73 lbs. respectively; and the same year I had a man (who was managing an out-apiary for me while running a store) put up 50 boxes in trees to catch absconding swarms. Among them he put up several sugar-barrels, some cracker-boxes, and some nail-kegs. We noticed that the barrels and large boxes were first occupied. One colony in a barrel we left on the ground in the woods until the close of the season, and it gave us 300 lbs. of fine honey. Eight years ago I had 56 swarms come out in one day; and although I had four assistants helping hive them, seven or eight swarms clustered together and resisted all efforts to separate them, so I had two ten-frame hives and two supers made, and placed them one above the other, leaving the two openings. Now, this colony finished up 365 sections of honey after filling the two hives, while none of the other colonies hived that day gave a single pound of surplus. If I put half a dozen hives on a colony I leave an opening for each hive so that the bees will usually work from each hive, and I seldom have a swarm from colonies thus treated. With those I want to swarm I use the common super on with sections for surplus honey. I had a colony last summer that had five twelve-frame hives on full of honey. It commenced to swarm, and I immediately set two of them off and put on another hive with empty combs, also taking out a few frames of honey from one of the hives. I had set off and put in frames of foundation, and they immediately quit coming out, and those that were out came back and went to work as though nothing had happened. For section honey I use the wide frame holding eight frames. In a heavy flow a ten or twelve frame hive will be filled in a remarkably short time; and then if another is not added they will swarm, no difference how many hives of honey they have on. In a heavy flow I have known them to bring in 20 to 30 pounds in a single day, while those in an eight-frame hive were bringing in 7 to 10 lbs. per day. I have eight-frame hives continually in my apiary for experimental purposes to show the great difference to other bee-keepers.

I had two last year, one with a queen-excluder and the other without in the same yard. Where others made 400 lbs., this one with an excluder gave me 60 lbs. of chunk honey; and the one without, produced 110 lbs. I had another that did not give a single pound of surplus, although they had a fine queen; but they were weak in the spring, and had very poor combs in the brood-nest, which I did not discover until the heavy flow was over.

Now, of course you will ask about the disadvantages of my system, and I will tell you. In breeding queens their full capacity they sometimes fail the second year, and are usually not good after two years, although I have had some very good at three years of age. I always change them by inserting a new queen whenever they begin to fail, without regard to age.

In conclusion I will say a few words about selling honey, as that is about as important as its production. Of course, I could sell my honey at 5 cts. per lb., and make plenty of money out of it; but I think it is really worth 15 cts., and is cheaper at that price than any thing else of its kind we buy to eat; and if I sold at that price my neighbors who keep bees, and many of them very poor, would have to go out of the business, and that would create a monopoly. I aim to buy all the honey produced I can hear of for miles around, and pay 15 cts. cash per lb. for it—just what I sell it at—and this prevents farmers running it in and glutting the market. Storekeepers will try to buy honey, especially of small producers, just as cheap as they can. Now, I make a uniform price for each kind, and furnish a good article, and never have any complaints. I have my 60-lb. cans made to hold 64 lbs.; and when a person takes 20 of them I give them an extra can—they pay for only 60 lbs. in a can. I usually sell comb honey by the case, and guarantee 20 lbs., but I never fail to get in at least 22 lbs. I always give liberal weight and have every kind of honey in my office, and invite all who come in to inspect it and eat all they want, especially women and children. This will create a taste for honey, and children will insist on their parents buying it. We make cakes out of honey, and can much fruit with it, and this sets an example which others will follow. In selling honey we can afford to be liberal, as it comes to us as a gift, just like finding it, and why not distribute it? I have found nothing is lost by liberal methods, and it will greatly help to counteract the falsehoods about honey adulterations. I always furnish ministers honey free, and editors the same, and then I oftentimes have the latter copy articles in their papers from the *A B C of Bee Culture*. Of course, a merchant who buys honey of a commission firm usually has to sell on a close margin, and he can not afford to be very liberal; but the producer can give away large quantities without any loss. I have always thought that every dollar's worth I gave away brought me two in return.

Apiculture is a pleasant, easy, honorable, and healthy business, and is conducive to long life and happiness, not only to yourself but to the human race.

I look upon the apiarist as a benefactor of the human race, as his teachings to the people warning them of the dangers of using refined sugars certainly entitle him to the respect and esteem of the humanitarian. I have practiced medicine nearly forty

years, and have closely observed, and I never knew a consumer of honey or bee-keeper to die from that dreaded malady, Bright's disease of the kidneys. There can be no doubt that the use of honey instead of sugars tends to prolong life; and I have known many invalids, affected with supposed incurable disease, to recuperate and get well under a diet composed largely of honey. With knowledge and industry the road to success for the bee-keeper is an easy one to tread, and will lead to health, wealth, and happiness.

[I have no doubt that this will seem like a fairy-tale rather than a sober narration of what has been accomplished, and I confess to being myself somewhat stumbled. When a man says he has averaged 400 lbs. per colony, spring count; has made \$25,000 from bees in two seasons; sells his honey—extracted, comb, and chunk—all at 15 cents—well, it does seem hard to believe; and were it not for the fact that I have obtained some corroborative evidence from residents in that vicinity, and were it not for the further fact that Mr. Gandy writes of experiences that corroborate my own observations, I should feel that the whole thing was a hoax.

Some time ago a bee-keeper, whose name I have mislaid, wrote me that I ought to go out to Nebraska and visit a bee-keeper whom he knew, who was more extensively engaged in apiculture than any other man in the world, and who was more than a millionaire. I have not visited him yet, but this is the man to whom my friend referred.

Dr. Gandy tells about making 300 and 400 lbs. average. Let us now stop and consider how he does it. W. L. Coggs shall put locality first: man next, hive last. In the first place, Dr. Gandy undoubtedly has a remarkable locality: He has doubled and almost trebled its value by putting out, as I should judge from what he writes, many acres of sweet clover and catnip. Both are remarkable honey-plants. My father once put out a quarter of an acre; but when he had 300 colonies in the neighborhood he could scarcely tell what that amount of catnip would do. But suppose he had set out 25 acres of sweet clover, and an equal area of catnip—then what? I am rather of the opinion we should have had some results; added to these acreages of clover and catnip, we have a man who is considerably above the ordinary as a bee-keeper.

He has proved what I have long been trying to teach, following after the Dadants, that large hives—or two or more L. hives one on top of the other—are more profitable than single L. brood-nests. He practically says he does away with swarming; and that these big colonies will treble and quadruple the amount of honey over the amount obtained from smaller ones.

I am having, at this writing, at our south yard—a yard I have been taking care of myself largely—a few twelve-frame Langstroth hives; a few Jumbo or Quinby size;



quite a number of ten-frame Langstroth, and 60 or 70 eight-frame L. hives. Now let me tell you the big hives are booming with bees and honey. Some of them are two and three stories high. Some have one story, and combs and two supers being filled with comb honey; and, such colonies! This morning, July 14, I could not help noting how the bees of these big colonies poured into the entrances in perfect streams—pouring in and pouring out. Swarm? They are just keeping still and sawing wood.

I confess to being somewhat enthusiastic about sweet clover and catnip; and you may rest assured I shall, at the earliest opportunity, visit our friend, so that I may be able to confirm all the wonderful things he has told us.

About his getting 15 cents for his honey—he evidently has capital enough to “corner the market;” but whether he can do it after this season is a question.—ED.]

### MAC'S BEES.

BY LOTTA MILLER.

Mac had read somewhere that there was an immense profit in keeping bees; so when



Mr. Willow offered him a five-dollar “swarm,” box included, in return for help rendered during last summer’s harvest he enthusiastically accepted it; and visions of unlimited wealth and a table flowing with milk and honey (Mac’s father owns a dairy farm) kept constantly

appearing before his mind’s eye. That is until lately. I think now he is beginning to think it folly to put such unlimited confidence in these small examples of industry, notwithstanding their proverbial reputations for steadiness of character.

A swarm of bees in May  
Is worth a load of hay.

Along in April last, Mac was continually quoting this old couplet to his family and friends. He wanted his bees to swarm; and he was sure his bees were going to do just as he wanted. But as it got along toward the last of June, and the bees, with that unexplainable contrariness sometimes noticed by careful observers of the model insects, still hadn’t “swarmed,” he became a trifle anxious. The weather, the lack of some particular flower for which bees are popularly supposed to have a sweet tooth—if one may use that noun in connection with bees—perhaps one ought to say tongue—every thing and the bees themselves were blamed in turn by Mac for being the cause of their disregard for his wishes.



Each day, each hour, Mac grew to look for the event of swarming; and his sister Dora, who had promised to watch them any time Mac was absent, was duly enjoined to “keep an eye” on their movements whenever he went ten rods from the house.

In the morning, when he went to the “lower field” or elsewhere on the farm, his parting injunction was, “Now keep an eye on the bees, Dora, whatever you do” (“or don’t do,” murmured Dora, sometimes, sarcastically). “They will be sure to come out to-day, I feel very certain, as it is so hot.”



Or if it was cloudy, “Now, Dora, don’t forget to watch the weather” (“as if watching the bees wasn’t enough,” Dora would complain); “and if it clears, keep an eye on the bees.”

Or if he went to town with his father, “Now *don’t* forget the bees, Dora; and if they should swarm, get Mr. Willow to come over and hive them.”

And so on. But Dora was usually very good-natured about it. Only when she and Mac had to take turns at staying at home from church to “keep an eye” on them for fear they should lose track of time, and break the Sabbath by swarming, she rebelled.

“They’re far more bother than they’re worth,” she said to Mac on one of these occasions.

Max bent a reproachful glance upon her.

“You’ll enjoy eating the honey next winter,” he said.

“It’ll be winter before they swarm,” scoffed Dora.

Whereupon Mac was offended, and would not let her stay at home, though it was her Sunday to do so.

One day, nearly the last of June, Mac went to town with his father. The morning was cool, but gave every promise of developing into an exceedingly warm day. The mother was in bed with a sick headache, and Dora was ironing, and “straining every nerve” to finish before the heat of the day.

“Now, Dora,” said Mac, “do try and remember to keep an eye on the bees. You know what to do if they should swarm?”

“I should hope so, indeed.”

Dora was warm and tired, and a little cross in consequence.

“They can just watch themselves,” said she to herself. “They’ll not swarm, any way.”

But with the usual perverseness of the minor portion of creation not supposed to know any thing about human wishes, Mac had scarcely got out of sight when those bees, to a last one, by the look of the cloud, came out of the hive. Such an “every which way”! If each individual insect

had had a "bee in his bonnet" the commotion could not have been greater.



"Oh dear!" sighed Dora, somewhat impatiently. "And a swarm this morning, of all times!"

But she turned out the fire, took the baby to a neighbor's that her mother might not be disturbed; the children were at school, the "subscription term" common in many rural places, and started on the run for Mr. Willow's, just as the bees began to hang themselves in a cone-shaped cluster on a small apple-tree in the orchard.

Mr. Willow was not at home; but his daughter Lallie at once donned her "bee regimentals," as she termed them, and they started back, arriving just in time to see the provoking insects scatter, and, after ten minutes' fuss and buzz, enter the hive again and go to work as calmly and unconcernedly as if they hadn't put anybody out in the least.

Dora was mad, and said so.

Lallie laughed. She was used to all sorts of bee behavior, and went back home carrying her "regimentals," while Dora shook out the unironed clothes to prevent mildew, and left them over to be dampened and ironed "in the cool" of the next morning.

Time passed. Every day or two the bees would rush out, and, after a tremendous amount of fuss, go back into the hive.

"There must be something wrong with the queen," said Mac, who was reading up on bee culture.

"There must be something considerably wrong with themselves," said Dora. "If they belonged to me I'd smother them, eat what honey they have, and be done with it."

"Talk about feminine patience!" scoffed Mac.

"Patience!" repeated Dora, then paused. Words failed to express her indignation.

The very next Saturday the bees "came out" again and "settled." This time Mac was at home.

"Thank goodness!" Dora heaved a big sigh of relief. "Now I do hope this will end it so we can have a little peace."

"A piece with honey on?" inquired Mac facetiously, shrouding his now smiling countenance in a monstrous combination of screening and curtain stuff that, by way of courtesy, he called a bee-bonnet. After he had donned a rubber coat and a pair of thick gloves, and tied his coat and trousers about the wrists and ankles with stout twine (not because he was afraid—oh no! merely as a necessary precaution) he was so effectually disguised that his own mother would not have recognized him had she happened to meet him unwittingly elsewhere.



Such a ridiculous figure as he cut! Dora laughed till she cried, and all the other children danced about and shouted with merriment. Mac said the noise they made frightened the bees back into the hive. Then Dora related how "grandpa" made all the noise possible, even setting her to drumming on an old tin pan when his bees swarmed.

For once Max was wroth with his bees.

"Drat them, any way!" said he savagely, pulling off his toggery.

"Are you going to church this morning, Mac?" asked Dora the following morning.

Mac looked at her reproachfully, without answering. But sometimes silence is more eloquent than speech. Dora suppressed the dimples that had begun to play about her mouth, but she didn't offer to stay at home too; and probably because Mac was ready and waiting, the bees observed that Sabbath in a proper fashion.

Monday, as the family sat peacefully at dinner, something lit in the middle of the dining-room floor with a loud resounding whack. It was a large dark object, and it came through the open door with as much velocity as if it had been hurled from a catapult.

Mac's mother screamed; the baby shrieked. Mac and



Dora looked at the object aghast; the other children sat with open mouths; the cat, that had been sunning itself on a windowsill, arched its back, hissed, and made a bee-line for the door. Mac's father stared in astonishment for a second, then said:

"Horatio, that's a funny way to come into your uncle's house."

"Jehoshaphat!" exclaimed the object, which, after it had straightened itself out, proved to be nothing more than a cousin of Mac, a young law student, home from college for vacation. He stood awkwardly rubbing the end of his nose, that was rapidly assuming the polish and proportions of a door-knob.

"O uncle! Shut the door, Mac! How d'ye do, aunt?"

He then limply subsided into a chair.

Mac burst out laughing.

"What's the matter with your nose, Horatio?" he asked.

"What's the matter with your old bees?" retorted Horatio, blowing on his handkerchief, and dabbing the end of his nose with the cooled portion.

Dora ran for the ammonia, and Mac to see about his bees.

"There are about five thousand, redhot upon the war-path out there," growled Horatio. "One stung me—I guess it was only one—" somewhat doubtfully. "I hope Mac'll get a dose of 'em—serve him right for laughing," he added, spitefully.

"They're swarming," explained Dora; "and I hope they'll either finish it up or go off to the woods."

Horatio's wicked wish was fulfilled, for



Mac, though he got his swarm safely hived at last, was unmercifully stung in several places. In his haste he had not adjusted his armor properly, and he was not yet "seasoned to stings."

As Horatio gazed on his swollen and distorted features as Dora hovered about his chair with the ammonia-bottle, he didn't find his heart hard enough to say one of the smart things he had ready for the occasion. But yet he couldn't resist giving him one parting "dig."



"Laughing's catching, old fellow," he said.

"That's all right," uttered Mac. His lips were thick and stiff. He also tried to wink at his cousin, essaying to turn the whole thing into a joke; but the wink was as poor a thing of its kind as the joke.

Mac's enthusiasm waned, and his ardor cooled with the bee-stings; but he is too plucky to think of relinquishing his bees.

"Live and learn," quotes he. "I'll know more about bees next season."

ing time we are apt to lose a great many of our queens and considerable brood, and all together the troubles we experience are just about the same as those you describe. I should presume that the trouble from your old bees disappearing was not because they were poisoned, but because they died of old age or were worked out. The young brood having been poisoned a month or so ago, does not give the hive the full quota of bees which would now be coming on from the brood that would have been hatched, but was killed.—ED.]

#### A FUMIGATING-BOX.

I wish to make a box to fumigate my brood-frames in, and I want to use bisulphide of carbon. You will oblige me by giving me directions how to make such a box, and how to arrange the carbon—whether it should be above or below the frames, and how much to use, and how long it should be in the box to kill moths, eggs, etc. Would the carbon be of any use after it has been used once?

W. A. CORDELL.

Ashland, Ore., June 7.

[The answer to C. T. Cole, on page 568, July 1, will give you the information you desire. You can use a box, and it will be, perhaps, in some respects, better than four or five hives stacked up, providing it is made almost air-tight. It should be so arranged that combs can be stored in tiers, one above the other, and so that a pint of bisulphide of carbon can be placed in a vessel *above* the combs. Never put it below.—ED.]

#### WHAT IS THE MATTER WITH NATURE'S LABORATORY?

We have been having very showery weather for some time, and vegetation is on the boom. White clover is blooming quite abundantly; white sweet clover has just commenced to bloom, while the yellow variety was showing the golden a month ago.

During fruit-bloom the bees built comb under the devices, and now the comb is empty, and they have not as much honey as they had a month ago. When we go among the hives at night and ask them how they have done to-day they slowly murmur, "Barely made a living." Kansas farmers are praying for help to secure their immense wheat crop; but the bees have plenty of workers, and no harvest to gather. In the good old days of white-clover honey, bees had to be very economical of their wax in order to be able to save the honey. The comb was built so thin as to be scarcely perceptible. It's a long time since I have seen such honey.

What is the matter with Nature's laboratory? Has the soil lost its sweetness? I live all I can in the open air; sew, and prepare vegetables for cooking, in the shade of a large tree. Yesterday, while working there with a sunbonnet on, a bee flew inside my bonnet and kissed my cheek. An-



#### POISONING FROM SPRAYING.

*Mr. Root:*—Since you have had some experience with poison from spraying fruit-bloom I write to ask you something concerning it. The condition of our bees has become quite alarming. Up until the last two or three weeks they have been in a most excellent condition, when we noticed a few ragged-looking bees. Last week we noticed large numbers of those bees, and they seem to weaken down to an alarming condition. It seems that the sick bees have flown away. There are no bees crawling around the yard as they do in bee-paralysis. Could it be possible that the brood reared during fruit bloom could have been poisoned from the sprayed pollen? Does the spraying affect the working force or brood, or both? We have lost a good many queens from some cause. The brood hatching now seems to be all right.

SUBSCRIBER.

Richland Co., Wis., June 24.

[From what you write it is our opinion that your bees have been suffering from poison administered during spraying time. As a rule the poison does not affect the adult bees, but sometimes it does when the mixture is given too strong. But it kills the young brood and the queens. These latter are fed very lavishly by the incoming bees just from the fields, and the average queen gets a larger dose of the poison than any ordinary worker-bee. During spray-

other punctured near one eye; a third my nose, and in a few minutes I received five stings upon my face. I bathed in cool water, and to-day there is no soreness or swelling. I suppose those bees thought I was to blame for the scarcity of nectar.

In a recent trip through the country, in cars and carriage, I looked constantly for bee-pasturage. All I saw was a little white clover by the roadside. Farmers do their work more thoroughly than formerly. In looking over the large fields of oats and corn I could not see a weed. The sloughs, where flowers bloomed year by year, are now tiled, and the plow and the reaper have destroyed them, and corn and meadows have taken their place. The Illinois River has overflowed her banks, and when the waters recede, bees may gather nectar from the button bush; and, later, the lowlands yield from Spanish needle, polygonum, and other wild flowers. MRS. L. HARRISON.

Peoria, Ill., June 25.

[I believe you have partly answered your own question yourself. Intensive agriculture has so monopolized lands that were once used for pasture, and where white clover grew and blossomed, that our former source of nectar supply has been largely cut off. But these very rains that have been killing the goose that laid the golden egg this year, are feeding the goose that will lay the eggs next year, because there are thousands of acres of white clover which are growing luxuriantly in every available spot where, before, drouth for a series of years had made their growth impossible.—ED.]

#### THE CALLING-NOTES OF YOUNG QUEENS.

I once took a frame in my hand, on which I expected a queen to hatch. Presently I saw her cut her way out, and she walked a few steps and put her head into a cell of honey and commenced drinking, and almost immediately began "piping." The piping and drinking seemed in no way to interfere with each other.

Recently I had a swarm from which I was expecting a second swarm. Piping was nearly constant, but only the younger queens were heard until the full time for the swarm to issue. Then I began to distinguish the high and querulous tone of the first to hatch. Still no swarm appeared. Next day I opened the hive and looked a long time for the queen. Her tone, still continuing, directed me to a certain frame, yet no queen was visible. Then I found a cell near the middle of the frame, which I tore off, and out walked a perfect queen. From some cause, however, she failed to become a layer.

Chuluota, Fla.

J. A. BARBER.

#### DOGS TO WATCH SWARMS.

Your paper has saved me several dollars on the sale of my honey alone, in addition to the valuable information every number

contains. I have a question for you to investigate. Has a dog ever been trained to watch for bees swarming? If so, what breed will do it? My shepherd thinks the bee-yard is the place for him to stay away from. I think a bee-dog would be a valuable addition to an apiary, especially in swarming time. J. D. CRAIG.

New Germantown, N. J., June 23.

[I was thinking about this very matter the other day, but more particularly in connection with an apiary located out in the woods away from any house. I wondered if we could not have a watch-dog that would stand as a sentinel over bees to keep off thieves. But a dog is a companionable animal, and it is doubtful whether he would be content away from his master unless held by a chain, and then he would be useless in case of the approach of thieves, if they knew he was chained. I doubt if a dog could be trained, unless he be an exceptionally smart one, so as to bark when swarms come forth. About the first training a dog gets around hives is that bees can sting, and they soon learn to keep entirely away from the premises.—ED.]

#### THE USE OF ENTRANCE-GUARDS DURING THE SWARMING SEASON; A CORRECTION.

It occurs to me that your advice to W. W. Brockunier, page 479, is misleading. Perhaps you did not understand the question as I see it. In my experience, where a swarm is thwarted in its desire by having the queen detained, after the second or third attempt to swarm they are almost sure to kill the queen; therefore, should the queen be confined by an entrance-guard she would be killed; and if the guard is not removed it would prevent the young queen, which would be due to mate ten or twelve days later, from taking her wedding-flight, and the consequence would be a hopelessly queenless colony, or else a drone-laying queen. Study over this, and see if I am not correct. Possibly this may not be the experience of others, but I always expect a queen to be killed if repeatedly prevented from accompanying the swarm. You say no harm will result if the guard is kept on during the whole season. That advice would not do for me to follow.

Bluffton, Mo.

S. E. MILLER.

[On reading your letter I said, "I agree with you exactly." While there is no direct conflict between my footnote and what you write, I see that my answer is not quite complete if a swarm should attempt to come out and a queen pass the guard. In that event even the guard, without doubt, should be removed after the swarm returns, or, better, while the swarm is in the air a hive with empty combs should be placed on the old stand, the queen caged, and put therein. The parent hive should be removed to one side, and the super put on the new hive. When the swarm returns, which it will do, release the queen.—ED.]



## CARBON BISULPHIDE.

In reply to an article by C. T. Cole, page 568, I would say I have used carbon bisulphide for seven or eight years to kill chicken lice. I find it is the only sure cure. I hang it in an open bottle under the roosts. In all that time I have never had an accident. I have poured it from the can into bottles in a room where there was a fire. I have inhaled the fumes many a time, and even spilled it on my hands. To me it has a very sickening odor. It is sure death to any thing without lungs. But I had one sad experience with it. My coops are very old, and it takes eternal vigilance to keep the lice down. One year they did not bother during the winter, and I neglected to get any of the drug in the spring. It was not long before every thing was overrun with lice. I had over 100 turkey eggs under hens, besides hens' eggs. I thought it would be a good idea to put a few drops in the nest, as that would kill the lice on the sitting hens. It did, and also the eggs. Very few of the eggs hatched, and some were near through incubation; so I know by experience that it will kill eggs. I used it several years before I knew it was at all dangerous. I will use nothing else in my hen-house. But I use insect-powder in the nests now. I have no fear in using it, and I would advise all who wish to get rid of hen lice, ants (pour it into the hole and cover it up; if in a crack, lay a heavy cloth over), and all little pests without lungs, to use it without fear; but that doesn't mean be careless.

MRS. IDA M. PIKE.

Cedar Run, Mich.

## IN LIEU OF THE HILL DEVICE.

On page 524 is an article, "Burlap and the Hill Device," by W. S. Pouder. I indorse every word he says on this point. Years ago I discarded both as a nuisance. I use the eight-frame Dovetailed hive. I have empty supers, and prepare them thus: I take  $\frac{1}{2}$ -inch boards, cut them to fit snug inside of super, to *rest on the tins*; then another to fit on top in the rabbet. They will be an inch longer than the lower boards. Thus prepared your super is ready for winter use. You can, if you like, fill in chaff or what you like; clean off the top-bars with a scraper nicely, and set on your super and cover. Do this a little early in the fall, so the bees can glue up all sides tight. I believe this is as good as any way to prepare bees for winter. It has been a success so far with me. You can prepare your boards, and keep them from year to year; and I suggest to the Root Co. that these boards be cut, and furnished as a part of the hive outfit—at least to those who ask for them.

J. W. C. GRAY.

Atwood, Ill., June 23.

[Your arrangement would work; but it seems to me it involves considerable labor and expense. We simply use a super-cover that sits squarely on top of the hive. Be-

tween this and the thick-top brood-frames below, there will be a  $\frac{1}{4}$ -inch bee-space, so that the bees can pass back and forth. On top of this super-cover, made of a pine board  $\frac{1}{8}$  inch thick, and bound at the ends with tins to prevent warping, we put a chaff cushion or a tray having a burlap bottom filled with chaff, planer-shavings, or any porous material. The telescope cover sits down over the whole. We have discarded the Hill device in wintering, and now prefer the sealed cover rather than a burlap cover that lets the moisture or "sweat," as some call it, ascend into the packing material, and make it damp for the bees.—ED.]

## HOW TO GET THE LITTLE WOOD ANTS OUT OF HIVES AND SUPERS.

I have read some good recipes in GLEANINGS concerning the little wood ants causing a lot of trouble at times by getting into the supers, and trying to hold possession of the colony of bees. I had much trouble from the little pests till I tried this remedy. Take a piece of gum camphor, about the size of a common bean, and tie it up in a thin piece of brown cotton or calico rag. Open the hive to where the ants are. Lay the rag with camphor in right in their nest, then close the hive, and in two hours open it and see where the ants are. If they have moved to another hive, give them another lump of camphor. Let the first one stay where you put it. They will not stay where camphor is. I have run them out from between the sections by laying the rag of camphor on top of the sections over the ants. The camphor will not hinder the bees in their labor, or at least it never has for me; but it makes the ants "get a move on 'em."

J. D. HOWARD.

Dunkinsville, O., June 23.

[Your suggestion is a valuable one; and those of our readers who are troubled with little ants will do well to carry into effect your "cure."—ED.]

## GEORGE W. YORK FOR GENERAL MANAGER.

I consider Mr. George W. York, editor and owner of the *Amer. Bee Journal*, as the logical candidate for General Manager of the National Bee-keepers' Association at the election to be held in December, 1902. It is common knowledge that Mr. York stands in the foremost rank of bee-men in America, and that he has always had the interest of the National and of bee-keepers in general at heart. Mr. York is an ex-president of the National, and right in the line for promotion.

It is probably not generally known that Mr. York received the next highest number of votes for General Manager after Mr. Secor at the last election. Mr. York has declared repeatedly that he is not a candidate for any office, but I believe he would obey a unanimous call, and sacrifice his personal feelings to the good of the greatest

number. He is in position to do great good in the way of publicity and promotion, and his journal has always been ready to forward the interests of the National.

HERMAN F. MOORE.

[It is true that Mr. York has repeatedly declared he is not a candidate for the office of General Manager. I once broached the subject to him, and he very positively declined to be considered a candidate. He based this refusal on the ground that no bee-editor should take the office. But if he were to get the *unanimous* support he *might* reconsider. Personally I know he would make a good General Manager; and I do not see why the fact of his being an editor of a bee-paper should stand in the way of his considering the office. Mr. Secor has said he wished to be relieved. Just what his future action will be I do not know. There are a dozen good men whom I could support as candidates, and Mr. York, Mr. Hutchinson, Mr. France, and Mr. Secor are some of them.

Now, when I say I do not believe that the position of editor bars one from being General Manager, I wish to say emphatically there are other reasons why I, as one of them, can not and will not be considered as a candidate; but I can give my support most cordially to any of the other bee-editors. I suspect the publication of this letter from Mr. Moore will raise a breeze with Bro. York. Well, let him raise the wind, Mr. Moore, and I can stand a good deal—these *hot* days. The Association needs some men who can *cool* things off a little.—ED.]

#### A PLURALITY OF EGGS IN ONE CELL.

I have a colony in a ten-frame L. hive that swarmed twice and superseded its queen. This young queen at this time has every cell filled with from three to seven eggs. This room consists of about seven combs. Those eggs hatch out perfect workers. As this is contrary to custom I should like an explanation.

G. B. CRUM.

Pearson, Ga., July 5.

[The circumstance you relate is quite unusual—that is, if the queen fills the whole seven combs, which we can hardly think possible, in the way you describe. Very often a queen, when she is young, and just beginning to lay, will deposit four or five eggs in a cell; but she will soon get down to regulation work and put only one egg in a cell. Drone-laying queens and fertile workers, or “laying workers,” as some call them, will very often lay several eggs in a cell.—ED.]

#### A PECULIAR CASE OF BEE-POISONING.

Mr. A. I. Root:—I shall be compelled to sell my bees. Two years ago last fall I got stung four or five times on the face, and it poisoned me for the first time; and in about two weeks I came down with typhoid fever. I was not able to handle them any

more that fall. I commenced the next spring, and I have inhaled something from them that affects me the same as a cold in my head and lungs, only worse. It affects me just as soon as I go among them. I have been wearing a sponge over my mouth, but it makes no difference. Some thought it was pollen. I have had to feed my bees this winter. I inhale it every time I go into the cellar.

You will notice I commenced this letter some time ago. It is now June 11, and I will try to finish it. I have sold my bees. I got stung both nights they came after them. The first night I was very bad; but the last night it went to my head and lungs, and I did not know whether I should live or die for about an hour. I have had several such spells before, most of them caused by inhaling the poison.

MRS. J. H. GRAY.

Cedar Run, Mich., June 11.

[It would be interesting to know whether any of our subscribers have had any similar experience. Years ago Mr. Langstroth told how the bee-poisoning affected him as soon as he went into the bee-yard. Even the very aroma of the bees would give him a very unpleasant sensation. This was during the latter end of his life, especially in the spring, when he first went out to work with his favorite pets.—ED.]



W. R., Ohio.—There is danger of using too much sulphur in fumigating comb honey. The larger the room, of course the more sulphur is needed. One pound in a room about 10×10, 10 feet high, will not be too much. The plan now recommended is to use bisulphide of carbon. About a pint of it should be put into a pan just over the pile of honey. Honey should be stored in some empty hives outdoors. Then the drug should be placed in the pan above referred to, on top of the whole. The fumes and gas that rise from the bisulphide are heavier than air, and will settle all around through the honey. The bisulphide will not discolor, while the sulphur is likely to do so.

W. H. H., Pa.—If you clipped the queen's wings before she took her flight she would prove utterly worthless, and should, therefore, be removed from the hive and killed. The bees should be given unsealed brood to rear another one, or, better still, a cell.

A glass slide could be used in the top of an Alley drone-trap, in place of the zinc slide very readily; but the ordinary manufacturer could not ship glass in a small article of this kind. There is another objection to it in that the bees would be apt to fly against it, bumping their heads



and struggling to get out. Our opinion is that a black wire cloth would be far better than glass if zinc is not to be used.



Let your light so shine before men that they may see your good works, and glorify your Father which is in heaven.—MATT. 5:16.

The sermon had commenced when I reached our little church, so I did not get the text; but as nearly as I could make out it was the one I have given above, or something very nearly like it. Toward the close of the sermon the pastor took up a side of the text I had never thought of, or at least had never thought very much about. He said, in substance, a professing Christian might shed *darkness* instead of "light" on those about him by dishonoring his Savior and his profession by his conduct. He said a very profane man had recently been converted; and, from the way he spoke, I judged it was some one not very far removed from our locality. This man had a kicking cow, and he admitted to his pastor that his greatest trial would come should this cow again get on one of her kicking-spells, and kick over the milk. His pastor told him to make this very matter a subject of special prayer. This newly converted man did so; in fact, if I heard correctly, he spent a great part of one night in praying that God would help him to overcome this one grievous sin. I can easily imagine this to be true, for I have passed through similar experiences. If I am correct, Satan kept putting the idea into his thoughts that he had made a great blunder in ever *thinking* of becoming a Christian. Satan kept saying, "If that cow kicks the pail over again, and gets on one of her 'tantrums,' as she is almost sure to do, you *know* you will swear, and no power on earth or in heaven can keep you from it with that temper of yours."

I can imagine the poor man trying again and again to get the matter out of his mind until he was worked up into a fever. Satan held up before him how the neighbors and the whole town would laugh and comment on the fact that Mr. Blank, who had just "got religion," and united with the church, got mad and swore at his cow so they could hear him all over town. There was no brave or manly way to get rid of the trial or *ordeal*, however. The cow *must be milked*, and he must do it. He got along very well until nearly through. Then she became restless, and began to switch her tail in the old way. Our friend began to pray for grace, for control; but the cow began to kick, notwithstanding his prayers. She kicked the pail over, but he, by a mighty effort of self-control, shut his teeth and did not let an ugly word come out.

Finally she kicked with *both* feet, and struck our newly converted man so as nearly to knock him off *his* feet, but not quite. He managed, by a strong effort, not only to keep his *feet*, but, in a like manner, to *keep his religion* and his hold on the Lamb of God who taketh away the sin of the world, and gained the victory.

The pastor didn't tell us any more about the man; but we all knew it without his telling us. He *continued* to let his light shine for Christ Jesus—of *course*, he did. Very likely his whole future Christian life hinged on this one trifling incident. From that moment his mind began to enlarge and expand, and he began to see the awful folly—nay, absurdity—of letting such a trifling thing as a "kicking cow" induce a man to take his *Maker's* name in vain. For the first time in years or in his life, perhaps, he was "clothed and in his right mind," sitting at the Savior's feet, and learning of him. Instead of sending darkness and curses out in every direction, he was sending out beams of light and beams of joy and hope to a suffering and sinful world.

Does some one ask about the cow? Well, the pastor didn't tell us about *her* either, after the incident I have mentioned; but our up-to-date stock-breeders will tell you that the probabilities are that, in process of time, she was a changed cow. O my dear friends! the gospel of Christ Jesus gets hold (indirectly) of even the domestic animals. The swearing and blows were the very things that fanned and kept at fever heat the satanic behavior that had been *trained* into her. Let me go back a little.

This young minister did not know how many in that Sunday-evening meeting needed just that sermon; but I know some who did. Some weeks ago one of my boys (the boys who work for me) was obliged for a little time to put up with something from another person that was not very pleasant, and, *he* thought, entirely uncalled for. I did what I thought best under the circumstances, and exhorted him to be patient and let it pass. He said he could bear about so much; but when his temper got up he could not control it. I tried to tell him that, when the great Father above made the world, he made provision for just such cases as this, and provided a helper, even his only Son, who was always ready to respond to our call. He seemed to think, however, that nothing of the kind would avail much with *his* temper.

Another young friend who is trying to lead a Christian life says he gets along very well until he is "real mad," and then he doesn't care for any thing. At such times, in his rage he calls the person he is mad at "every mean name he can think of." It just now occurs to me that children (or, if you choose, young people) are not the *only* ones who at times give certain people "a piece of their mind," and perhaps pride themselves on their "plain speaking." Men sometimes term it "giving him

a blowing-up." All these different expressions mean, if I am correct, calling folks names when you are mad. It is true, you can apologize and ask to be forgiven when your anger has passed by, and perhaps your friend (it often *is* a friend who gets the blowing-up) may *try* to forget the unkind words uttered in a passion; but, oh how much unhappiness and pain would have been spared if the harsh words had never been spoken!

These two I have spoken of were present and heard the sermon; and as there was a lot of other young people there, who can say but that every one of them needed that simple little story?

Just a word more about *cows*, in closing. Another of my boys who has worked with cows, and has done considerable milking, said he had been kicked over by cows a good many times, but that he never swore at them nor pounded them. Said I:

"But what do you do with kicking cows? Does whipping never do them any good?"

"I think not. So far as I know it always makes them worse."

Now, friends, it is probably true that there are kicking horses and kicking cows that you might whip to *death* without conquering or driving out in the least the ugly spirit. You may *torture* them; but as long as there is a spark of life left it is plainly evident they haven't given up, and prefer to *die* unconquered. I think expert horse-trainers will bear me out in this. Well, in view of this is it not sheer folly and a relic of barbarism to think of bettering things by the swearing and pounding method? Finally, isn't it true that we have some boys (yes, and perhaps *sometimes* even girls too) who are almost as stubborn as the dumb brutes? I would by no means advocate doing away with punishment; but let the punishment come from a Christian man or woman, and let it be done in a Christianlike way. The "blowing-up" process is not at all what is wanted, for *all* punishment should be administered in the spirit of kindness and love.

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## Temperance.

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### WHAT THE ANTI-SALOON LEAGUE IS DOING.

Some years ago I visited a relative at Xenia, Ohio, and in looking over the city our conversation turned on temperance. Saloons there were wide open; the mayor and other officers seemed rather in sympathy with the "wets;" Christian people either didn't know or didn't care, and the outlook did indeed seem hopeless. I suggested that the city needed a brisk stirring-up by the *Anti-saloon League*; but my companion said they had just been trying to have some meetings; but as nobody gave them any attention, he "guessed" they gave the town up as a bad job. Bribes and steals, among the city officers, seemed to be a common thing; and as the saloon element

ruled, there was nobody to make a fuss about it. I saw some boys stealing peaches from the crates at the railroad station, and asked why this was permitted in broad daylight. My companion said it was because the agent's *own boy* was one of the "gang," and he said this was a fair sample of the way things were allowed to go on in a "whisky-ruled" town. Of course, there was wrangling all the time; but every effort to punish the guilty parties seemed only to end in long and expensive litigation, with almost one result—the rascals came out ahead. And this state of affairs was going on in one of the finest and most productive portions of the whole State of Ohio. You may be sure that I have watched with interest the temperance movement that started a year or more ago. Now please read the following from the State Superintendent of our League, who, I take pride in saying, is a very dear friend of mine:

*My dear Friend:*—I am in receipt of your card in reply to mine concerning the proposed Anti-saloon Congress. We have decided to have it. It will be held December 2, 3, 4, in Columbus, and we shall expect you to be present.

We are having hot times now all over the State. Up until to-day 59 towns have voted; 38 have gone dry, and 21 have voted to continue the saloons. This is a pretty good record in view of the fact that our friends, in many places, run in and forced the vote without due preparation. They are learning better now.

I think it is a safe estimate that, before the next Legislature meets, fully two hundred towns will have rid themselves of the saloons. Surely this pays for all the cost and sacrifice of the past. Xenia voted day before yesterday, and won by 199 majority dry. This is the most terrific fight we have had yet. It has been dry under the ordinance; but the law was being violated by a large number of the saloonists, and the mayor refused to enforce it absolutely; and, being an ordinance, we could not take it to the county courts, so we were helpless. We have it upon good authority that the saloon and brewery interests spent \$13,000 in their effort to make it go wet, but failed. When the returns came in, and it was found that the town had gone dry, the good people gathered on the streets and sang hymns, and laughed and cried and congratulated each other, and used up all the explosives that had been laid in for the Fourth of July—went to the churches and had prayer-meetings, and a general season of rejoicing. They have had a long hard fight.

The next largest town which is to vote is Irononton, a place of 15,000 or 18,000 people. I am doubtful about results, but they put up a hard fight. They vote July 17. There is scarcely a day now that some town is not voting, and some days three or four.

I hope you are enjoying good health and your new home. When you are at leisure, let me hear from you.

P. A. BAKER, State Supt.

Columbus, Ohio, June 26, 1902.

Well, friends, what do you think of that? I have not been very much in the "fireworks business" for some time past; but when it comes to emancipating such a town as Xenia from "rum rule" I believe I could with a good conscience waste money on firecrackers, and help make a noise equal to any youngster. During the 4th of July just past, Mrs. Root was alone all day in "the cabin in the woods," and she says she not only did not hear a firecracker nor smell gunpowder, but did not get sight of a living soul during that independence day (I was off in Ohio); but if the time is at hand when fireworks are to be used to celebrate emancipation from rum, I am sure she too will join me in burning powder and making a racket.



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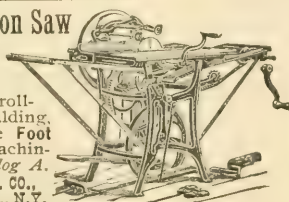
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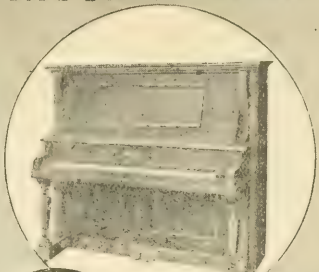
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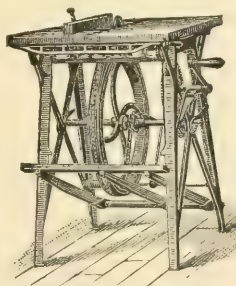
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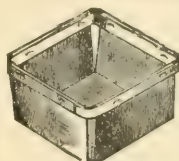
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W. Z. Hutchinson, Flint, Michigan.

## Long Tongues Valuable South as well as North.

How Moore's strain of Italians roll in the honey down in Texas.

Hutto, Texas, Nov. 19, 1902.

J. P. Moore.—Dear sir:—I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my vut-aparies next spring with your queens.

Yours truly, HENRY SCHMIDT.

The above is pretty strong evidence that red clover is not the only plant which requires long-tongue bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75 cts. each; six, \$1.00; dozen, \$7.50. Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00. Safe arrival and satisfaction guaranteed. Circular free. I am filling all orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.  
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No bee-keeper wants to give hive room to inferior bees. The best queens fill their hives with brood. The best bees fill their supers with honey. Every bee-keeper knows this, but does not know that our strain of Italians are in the lead. Try them. You will not be disappointed. Choice tested queens, \$1.00 each. Untested, 75c; \$3.00 per doz. Send for price list.

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| Same, per half dozen.....        | 4.00   |
| Same, per dozen.....             | 7.50   |
| Untested, each.....              | .65    |
| Same, per half dozen.....        | 3.50   |
| Same, per dozen.....             | 7.00   |

We have also a full line of bee-keepers' supplies including THE A. I. ROOT COMPANY'S GOODS. Send for our 32-page illustrated catalog.

**W. W. Cary & Son,**  
Lyonsville, Mass.

## TERRACE QUEENS.

Bred from selected stock; best of workers; very gentle, and fine color. Warranted, 75 cts.; six for \$4.00; dozen, \$7.50; tested, \$1.00.

Harold Horner, Terrace Apiary, Mt. Holly, N. J.

**Notice!** After July 1st I will sell fine Italians as follows: Untested, 55c; tested, \$1.00; breeders, \$2.00. My bees are hardy, gentle, and prolific and work well on red clover. I also have choice stock of Doolittle's, Root's red-clover, and other strains, and will do the best I can to please. Safe arrival guaranteed. **Earl Y. Safford, Salem, N. Y.**

**FOR SALE.**—100 Langstroth winter hives, supers, zinc honey-boards, bee-escapes, and feeders.

KARL KEIM, 149 York St., Buffalo, N. Y.

## TEXAS QUEENS!!



From the Lone Star Apiaries. G. F. Davidson & Son, prop's, have made great preparations for the coming season to accommodate their many customers with either Long-tongue, Imported Stock, or Golden Queens. They have bought out the queen-rearing business of O. P. Hyde & Son, Hutto, Texas, and by buying and increasing their

number of nuclei, they are better prepared than ever to cater to the trade of the bee-keeping public. One of Root's Long-tongue Breeders; Imported Stock direct from Italy; Goldens from leading queen-breeders. Fine breeders of each of the above have been added to their yards. Safe arrival and satisfaction guaranteed. Send for queen circular and price list. We are now prepared to fill orders for Cyprian and Carniolan queens. Good strains. Address

G. F. Davidson & Son, Box 190, Floresville, Texas.

## Special Notice to Bee-keepers!

## Root's Supplies

at Catalog Prices.

SEND FOR CATALOG.

**F. H. Farmer, Boston, Mass.**  
182 Friend St., 1st Flight.

## Try a Few of My Queens.

For the first time this season I have a few queens ahead of orders. These orders came from all customers who had tried a few queens—some of them dozens or hundreds—and liked them. A few from new ones. But as I was pushed with orders I advertised very moderately. Now I have a big lot of nuclei and queens, and can send queens *promptly* as follows: Warranted queens, 75c; six for \$4.00; one choice select warranted, \$1.00; six for \$5.00. Send for free folder.

**J. B. CASE, Port Orange, Florida.**

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Strong, durable material and good honest workmanship make our vehicles and harness outfit two of the ordinary kind.

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## Rocky Mountain Bee Journal.

We want to send it on trial to every reader of *Gleanings Three Months for 10 cts.* This vigorous young monthly has just entered its second year on a paying basis, and has become the recognized mouthpiece of the bee-keepers of the great Rocky Mountain alfalfa regions. Address

**The Rocky Mountain Bee Journal,  
Box 611, Boulder, Colorado.**



### I Make Red-clover Workers

and I can work in flowers and get honey where others can't. I am guaranteed to work in red clover. Will forfeit \$100 to any one coming here, and proving that they can't work clover. Twenty years' experience in bees and queens. All queens are reared from best mothers and best methods. In 1900 many of my colonies stored 200 lbs. and over of red-clover honey. Our bees commenced swarming in April this year. It takes only good stock to swarm so early. One untested, 75c; dozen, \$7.00. Tested, \$1.00; dozen, \$10.00. Breeders, \$5.00. Golden queens as well as Red-clover. Queens by return mail. 50 to 100 queens at special prices. Money-order office, Guernsey.

**G. Routzahn, Menallen, Pa.**

### Imp't'd Queens Direct from Italy

Please send us your address on a postal card, and we will send you our price list of queens, written in English. Our motto: "Whatever ye would that men should do to you, do ye even so to them." Address **Malan Brothers, Queen-breeders, "Apiario," Luserna, San Giovanni, Italy.**

### Minnesota Bee-keepers' Supply Mfg. Co., Manufacturers of

### Bee-hives. Sections, Shipping-cases, and Everything Used by Bee-keepers.

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

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Nicollet Island Power Building, Minneapolis, Minn.**

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Let us show you how quick we can fill your orders. Best of goods and the best place in country to ship from.

**Get our Prices on Dovetailed Hives and Sections. Write to us if you have any Honey or Beeswax to sell.**

**C. M. SCOTT & CO., INDIANAPOLIS, INDIANA.  
1004 East Washington Street.**

## The Best Stock.

I have had 18 years' experience in the production of honey, and during that time I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then, by crossing these different strains, and selecting the best, and breeding from them, I have secured a strain of stock that is the equal of any for honey-gathering. This year I am breeding from a daughter of Root's famous \$200 queen, and from the stock of J. P. Moore. Warranted queens, in any quantity, will be sold at 55 cts. each, and satisfaction will be guaranteed in every case, or money will be refunded.

**L. H. Robey, Worthington, W. Va.**

## Queens! Queens!

We have five different yards, 5 to 20 miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos are bred for business. You can send in your orders at following prices the rest of this year: Tested, \$1.50 each; \$8.00 for six; \$15.00 per doz. Untested, 75c each; \$4.25 for six, or \$8.00 per doz. Fine breeders, \$5.00 each. Safe arrival guaranteed. Write for free catalog. Tells how to raise queens and keep bees for profit. **The Jennie Atchley Co., Beeville, Bee Co., Tex.**

## ROOT'S GOODS

IN CENTRAL MICHIGAN. Best goods; best shipping-point; cheapest place to buy in state. Try me. List. **W. D. Soper, Rt. 3, Jackson, Mich.**

## If You Want Root's Goods

we have them at Root's prices. Also A B C in Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

**D. Cooley & Son, Kendall, Mich.**

## Do You Read the Modern Farmer?

If not, why not? Perhaps you have never seen a copy. If not, send for one now—it's free. *Send us 10 cents and the names and addresses of five farmers and we will send you the paper one year.* Clubbed with this paper. Write for price. Address

**MODERN FARMER, - St. Joseph, Missouri.**

## POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts. if you mention *Gleanings* (reg. price, 50 cts.). **Inland Poultry Journal, Indianapolis, Indiana.**

**RUBBER STAMPS.** Send us 25 cts. for FREE a sub to our 36-p. monthly journal and we will mail you FREE a premium a two-line Rubber Stamp, or two one-line Stamps, to print any wording you want.

**THE FARM AND POULTRY NEWS, Middlesboro, Ky.**

To make cows pay, use Sharples Cream Separators. book "Business Dairying" & cat. 288 free. **W. Chester, Pa.**

**FOR SALE.**—100 colonies in home-made 8-frame hives on Hoffman frames.

**J. J. CHAMBERS, Atkinson, Wayne Co., Ga.**





## PROPOLIS WANTED.

H. F. Schultz, 86 Court St., Boston, Mass., desires to purchase about 5 lbs. of propolis, as free from beeswax as possible. As we have none for sale we refer this to our readers. But do not send any without writing first, stating how much you have, and the price wanted; for he might get many times the amount he needed to supply his requirements, and would refuse to accept or pay for it.

## BUSINESS BOOMING.

Orders continue to arrive in goodly volume, so that we are still kept busy making and shipping, with little opportunity yet for making up much reserve stock. In carload shipments we are 12 to 15 ahead of any previous year at the present date. The indications are that, as soon as the temperature moderated, and there were days without rain, the flow of honey was very heavy, so that it bids fair to be a good season, as nearly as can be judged at this writing. There are very few orders which we do not ship within 24 to 48 hours from the time received.

## SPECIAL OFFER ON HONEY-CANS.

As a special inducement to reduce stock, we offer at the following prices, for shipment from Medina only, some  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and 1 gallon square cans. Some have  $1\frac{1}{4}$ -inch cap, some  $1\frac{1}{2}$ -inch, some  $1\frac{3}{4}$ -inch, and some  $2\frac{1}{4}$ -inch. Packed 100 in a crate, we will sell  $\frac{1}{4}$ -gallon at \$6.50,  $\frac{1}{2}$ -gallon at \$7.50, and 1-gallon at \$10.00 per 100. This is new and perfect stock, and our only reason for making these prices is to reduce stock on hand. Therefore this offer is limited, and will be withdrawn when present stock is disposed of.

We have also in stock several hundred various sizes of seal-cover pails, formerly listed in our catalog, which we offer to close out at former prices: No. 1, \$6.50 per 100; No. 2, \$7.50; No. 3, \$9.50; No. 5, \$10.50.

## NEW HONEY WANTED.

There is an old adage which runs, "The early bird catches the worm." We should like to get in touch with some of the "early birds" who have honey ready for market. We have a demand now for new honey, both comb and extracted, which we can not supply. I know bee-keepers are busy making room for the bees to store what they gather, as well as in haying and harvest; but there ought to be some who are enterprising enough to get the early honey off to market and catch this waiting trade. Let us hear from you with sample of extracted clover, and description of comb honey which you have to offer. The indications at present point to a larger crop than usual in many places, and late in the fall, at the convenient time for preparing and shipping, there is more likely to be a surplus. Who is ready to supply this early trade?

## SEVEN-TOP TURNIP FOR HONEY OR TO PLOW UNDER.

The seven-top turnip is perhaps the best one to plow under for fertilizing the soil. It will also give a good crop of honey before it is turned under in the spring. If sown any time in August or the fore part of September it will get rooted so as to stand any winter. In fact, I never knew it to be thrown out by the frost here in Ohio when it gets a good start. It comes into bloom between apple-blossom and white clover. It may be plowed under for potatoes or any other crop. Price, ounce, 5 cts.; 1 lb., 20 cts.; 10 lbs. or more at 15 cts. If wanted by mail, add 10 cts. per lb. extra.

## WINTER OR EGYPTIAN ONION-SETS.

We are just now gathering a fine crop of these. Quart, 10 cts.; peck, 50; bushel, \$1.50. If wanted by mail, add 10 cts. per quart for postage and packing. As we are getting a good many orders, if you want them at the above price you had better get in your order at once. Now is the time to plant them, and the sooner the better. They never fail to grow, and they will stay in the ground for years unless you dig them out. It takes a very smart weed to crowd the winter Egyptian at any season of the year; but, of course, they do very much better where the weeds are kept out, and clean cultivation given. Perhaps I might add, in conclusion, that, if the weather is not too hot and dry, almost all kinds of peas will give a nice crop for table use if put in during the fore part of August.

## Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—One dollar for 15 W. P. Rock eggs; \$3.00 for 50, or \$5.00 for 100; from 93 to 95 scoring birds; cockerels and pullets, \$1.00 each; 75 cts. for one Golden Italian queen, or \$8.00 per dozen—after August 1st, 50c each or \$5.00 per dozen.

GEO. W. COOK, Spring Hill, Kansas.

**WANTED.**—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid. O. H. HYATT, Shenandoah, Ia.

**WANTED.**—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no drip honey-cases for plain Danz. and  $4\frac{1}{4} \times 4\frac{1}{4}$  sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—To exchange American Eclipse evaporator—contains 78 reversible trays, 7 square feet each—for bees or offers, or will sell cheap for cash. Also want location for bee-yard in the buckwheat district, either West Virginia, Pennsylvania, or Maryland. REINHARD STEHLE, Marietta, Ohio.

**WANTED.**—A buyer for a quantity of honey-cans that have been used once. Write for particulars to L. C. WOODMAN, Grand Rapids, Mich.

**WANTED.**—To exchange carefully reared queens for wax, honey, or hive bodies K. D. Address SWARTMORE, Swarthmore, Pa.

**WANTED.**—One or more copies of Vol. II. Cheshire's Bees and Bee-keeping. Let us know in what condition your book is, and price wanted. THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—To exchange warranted and tested Italian queens for good typewriter and foot-power saw. JOHN M. DAVIS, Spring Hill, Tenn.

**WANTED.**—To exchange motor-cycles, gasoline-engines— $1\frac{1}{2}$  to  $4\frac{1}{2}$  h. p. Wanted—machinery of all kinds. ROBERT B. GEDYE, LaSalle, Ill.

## Wanted Immediately, Comb Honey in Danzenbaker Sections.

We have a market for large quantities of fancy comb honey in Danzenbaker sections, and shall be pleased to hear from parties who have any to offer. In writing, please state:

1. From what source gathered.
2. Color (white or amber), and grade (Fancy or No. 1.)
3. In what size cases.
4. Price at which you will sell f. o. b. at your station, or delivered at Medina (preferably the latter).

We can use, also, moderate quantities at once in Ideal ( $3\frac{3}{8} \times 5$ ) and  $4\frac{1}{4} \times 4\frac{1}{4}$  sections; also extracted. Send sample of extracted, putting your name on the same, and giving particulars as to amount, source, size of package, and price. Extracted honey is preferred in 5-gallon square cans.

THE A. I. ROOT CO., Medina, Ohio.

**FOR SALE.**—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**FOR SALE.**—Extracted honey, from alfalfa, at 7c per pound. Send for sample.

D. S. JENKINS, Las Animas, Col.

**WANTED.**—Extracted white-clover honey. Will pay highest price for the right article.

H. B. PHILLIPS, Auburn, Me.

## PAGE & LYON,

New London, Wisconsin.

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AND DEALERS IN . . .

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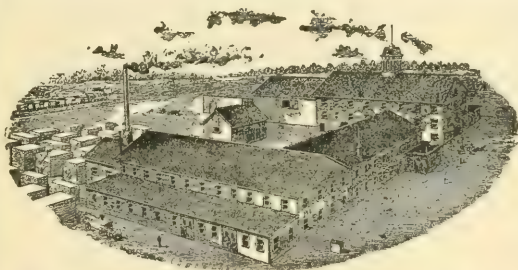
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### Sixty-four Page Catalog

of every thing bee-keepers need.  
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Especially valuable to begin-  
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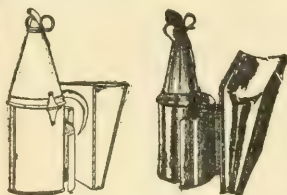
## BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. *Write at once for a catalog.*

— AGENCIES —

Kretschmer Mfg. Co., Box 60, Red Oak, Ia.

Trester Supply Company, Lincoln, Neb.  
Shugart & Ouren, Council Bluffs, Ia.  
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used.  
Truly yours,  
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

## Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.



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## Honey Column.

### GRADING-RULES.

**FANCY.**—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

**A No. 1.**—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

**No. 1.**—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

**No. 2.**—Three-fourths of the total surface must be filled and sealed.

**No. 3.**—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

### CITY MARKETS.

**KANSAS CITY.**—What new comb honey that has arrived in market has found a fairly good demand at 14¢@15¢ per lb. for new white; new amber, 13¢@14¢; old, 12¢@13¢; white extracted, 6¢@6½¢; amber, 5¢@6¢. Beeswax, 25¢@30¢.  
C. C. CLEMONS & Co.,  
July 26. 306 Grand Ave., Kansas City, Mo.

**DENVER.**—New No. 1 comb honey, \$3.00 per case of 24 sections, and scarce. Old comb honey is now pretty well cleaned up in this market. Extracted honey, 7¢@7½. Beeswax, 24¢@27.  
COLORADO HONEY-PRODUCERS' ASS'N.,  
July 22. 1440 Market St., Denver, Col.

**ALBANY.**—We are having some demand for new honey, but none coming yet. The unusual cool weather causes earlier demand than when hot. Think could get 16 for white now; 15¢@16 for off color. Very light demand as yet for extracted. Beeswax, 29¢@32.  
MACDUGAL & Co.,  
July 22. 375 Broadway, Albany, N. Y.

**PHILADELPHIA.**—This has been the largest season Pennsylvania has had for years on honey, though the production is not very large as a state. We quote extracted selling in a small way in 60-lb. cans at 7½¢@8¢. Comb honey has very little call this early in the season—some few sales at 15¢@16 for fancy. Beeswax, 27¢. We are producers of honey, and do not handle on commission.  
WM. A. SELSER,  
July 12. 10 Vine St., Philadelphia, Pa.

**CHICAGO.**—Not any comb honey of the new crop yet on the market, but advices of this week would indicate that some sections of the country are now prepared to ship as soon as any demand appears; and beginning with August there has in past seasons been more or less of a market, and it is looked for to begin this year on time. This for several reasons; one being that we are going to have some choice white clover and basswood to offer, which has not been over plentiful during the past three or four seasons. Prices are nominally the same as during the past 90 days. Beeswax sells at 30.  
R. A. BURNETT & Co.,  
July 19. 199 South Water St., Chicago, Ill.

**BUFFALO.**—Below is the market price of honey here, but very little demand; no new honey in yet. There has been too much wet weather in York State for bees doing well. Old fancy white comb, 13¢@14¢; A No. 1, 12½¢@13¢; No. 1, 12¢@12½¢; No. 2, 11½¢@12¢; No. 3, 10¢@11¢; fancy dark, 10¢@11¢; No. 2, 8¢@9¢. Extracted white, 6¢@7¢; dark, 4½¢@5¢. Beeswax, 28¢@30¢.

W. C. TOWNSEND,  
July 22. 167 Scott St., Buffalo, N. Y.

**NEW YORK.**—There is some fair demand for comb honey at 14¢ for strictly fancy white; 12¢@13¢ for No. 1, and 10¢@11¢ for amber. Extracted quiet at unchanging prices. Beeswax dull and declining at 29¢.

HILDRETH & SEGELEN,  
July 9. 265-7 Greenwich St., New York City.

**SAN FRANCISCO.**—Comb honey, 10¢@12¢. Extracted, water-white, 5½¢@6½¢; light amber, 4¢@5½¢; dark, 4¢@5¢. Beeswax, 27½¢@30¢. Honey is steady, with trade of moderate volume.  
E. H. SCHAEFFLE,  
July 12. Murphys, Calif.

**FOR SALE.**—Several thousand pounds of comb honey in Danzenbaker 4×5 sections. Shall commence filling orders in August.  
WM. MORRIS, Las Animas, Col.

**FOR SALE.**—Four tons of choice extracted clover honey, put up in 160-lb. kegs. at 7¢ per lb.  
E. W. & F. C. ALEXANDER, Delanson, N. Y.

**FOR SALE.**—About 5000 lbs. comb honey in Danz. sections and 5000 lbs in 4½ plain sections at 12¢. f. o. b. at Macon; also 1000 lbs. extracted at 7¢, in 5-gal. cans. The above was made from sweet clover, and is very nice.  
GEO. A. HUMMER, Brazelia, Miss.

**FOR SALE.**—Four cases, of two five-gallon cans each, at \$3.75 per case, f. o. b. at San Marcial. Cause of selling cheap: It is willow honey and is slightly bitter. It is good for feeding back or confectionery purposes.  
H. E. JAYNES, San Marcial, N. M.

We can place a few cars of comb and extracted honey; will be glad to correspond with parties having some to offer. We also solicit local consignments.  
C. C. CLEMONS & Co., 306 Grand Ave.,  
Kansas City, Mo.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.  
SEAVEY & FLARSHIM,  
1318-1324 Union Avenue, Kansas City, Mo.

**WANTED.**—Honey and beeswax. Mail sample, and state price delivered at here.  
C. H. W. WEBER,  
2146, 2148 Central Ave., Cincinnati, Ohio.

**WANTED.**—Comb and extracted honey. State price, kind, and quantity.  
R. A. BURNETT & Co.,  
199 South Water St., Chicago, Ill.

**WANTED.**—Comb honey, white or amber, for cash or on commission, clover preferred. Reference—The A. I. Root Co.  
C. G. TURNER, Mechanic Falls, Me.

**WANTED.**—Offers of car lots of honey, especially comb honey. Cash paid on delivery at your warehouse or station.  
THOS. C. STANLEY & SON,  
Apiarists and Honey Buyers,  
Manzanola, Col., or Fairfield, Ill.

**FOR SALE.**—Extracted honey, from alfalfa, at 7¢ per pound. Send for sample.  
D. S. JENKINS, Las Animas, Col.

**WANTED.**—Extracted white-clover honey. Will pay highest price for the right article.  
H. B. PHILLIPS, Auburn, Me.



# A Standard-Bred QUEEN-BEE For 25 cents



To a New Subscriber for the  
Weekly  
American Bee Journal.



We have arranged with several of the best queen-breeders to supply us with **The Very Best Untested Italian Queens** that they can possibly rear—well worth \$1.00 each. We want every reader of Gleanings to have at least one of these Queens.



As the supply of these splendid Queens is limited, we prefer to use all of them in this way—for getting new subscribers. But if any one wishes to purchase them aside from the Bee Journal subscription, the prices are as follows: One Queen, 75 cents; 3 Queens, \$2.10; 6 Queens for \$4.00.



We expect to be able to fill orders by return mail, or almost as promptly as that, so there will be no great delay, at any rate.

Remember, the Weekly American Bee Journal one year and the Queen—both for only \$1.25—to a NEW subscriber.

Now for your name and \$1.25—and then the Queen that we will send you. Address,



**GEORGE W. YORK & CO.,**  
144 & 146 Erie Street, CHICAGO, ILL.

Sample copy of the American Bee Journal and Catalog of Root's Bee-Keepers' Supplies FREE.





# Seasonable Suggestions.

## Use The Porter Spring Escape.

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over the doors and windows in the extracting-house, or any place you wish to clear of bees. The most persistent robber can not return. Some beekeepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape. Don't wait till to-morrow before you get a supply. You can't afford to be without them longer.

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Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

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105 Park Place.

**Honey=jars!** 1-lb. square jars, \$5.00 per gross; No. 25 jar, porcelain top, \$5.75 per gross; nickel cap, fancy, \$5.50 per gross. All clear flint glass. We ship from N. Y. City. Cartons, shipping-cases, every thing a bee-keeper uses. Tested Italian Queens, \$1.00; untested, 70c. Catalog free. Apiaries are located at Glen Cove, Long Island.

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## Queens Now Ready to Supply by Return Mail.

**Golden Italians** have no superiors and few equals; untested, 75c; 6 for \$1.00.

**Red-clover Queens** which left all records behind in gathering honey untested, \$1; 6 for \$5.

**Carniolans**, the so highly recommended, being *more* gentle than others; untested, \$1 00.

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GLEANINGS

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

BEE CULTURE

ILLUSTRATED
SEMI-MONTHLY
Published by THE A. ROOT CO.
\$1.00 PER YEAR MEDINA, OHIO.

VOL. XXX.

AUG. 1, 1902.

No. 15



FOR THROAT and lung troubles, with influenza and fever, the following drink is palatable and healing: In a pint of water squeeze the juice of half a lemon, and add 2 to 4 tablespoonfuls of warm honey.—*Oest.-Ungar. Bztg.*

I READ to my sister the last *Straw*, p. 588, to see if you had quoted her correctly at the close. She said, "Yes, indeed, I agree with him that it's easier to get out the Hoffman frame than the dummy, for sometimes you can't get out the dummy at all till you get out a frame. But that's with Hoffman frames. With Miller frames it's an easy thing to lift out the dummy, and then you can take out any frame with no trouble." Then she made some remarks about handling Hoffman frames that it isn't necessary to repeat here. [Say, doctor, why didn't you quote her *verbatim et literatim*? Then in the meantime I could conjure up a lot of arguments ready to meet her when I see her in Marengo, going to or coming from Denver.—Ed.]

P. NEUMANN, in *Centralblatt*, says that, while formalin, as shown by Prof. Harrison, the Canadian, will destroy the spores of foul brood, it can not be considered a cure, only a disinfectant. He agrees with the view persistently held by the editor of GLEANINGS that no drug can be a cure for foul brood; for whatever will destroy foul-brood spores will destroy bees. I think Prof. Harrison says all brood is destroyed by formalin. [It is a pleasure to me to know that my own humble opinion in this matter has been confirmed by Prof. Harrison. I based my belief on the almost indestructible nature of the spores of foul brood. I said *almost*, for they are destructible; but I did not believe it possible that

an antiseptic that would not kill bees would destroy the spores of foul brood. In any expressed opinion on this question it is well to err on the safe side.—Ed.]

I'M MUDDLED about this fastening business. I asked, page 587, Mr. Editor, if one strip at each corner instead of four at each corner would not fasten hives securely enough, and your reply sounds as if you really use only four to the hive, whereas your former advice to use four at each corner would make sixteen strips to the hive. [I have repeatedly told you to label your jokes. In my hurried reading I took you seriously, and now I see you "have the laugh on me." I only ask the indulgent reader not to read Dr. Miller's joke, but to read my footnote to the same on pages 587, '8. When a poor little chap like me is revising and running off the A B C book at the rate of 64 pages between the issues of GLEANINGS, gets out one number of the journal, and spends a few hours each day with the bees, to say nothing about the office correspondence coming in my department—well, do you wonder that I sometimes do not read every word? Never mind, doctor; I will have my revenge when I see you next month.—Ed.]

YOU WAIT till next time I see you, Mr. Editor, and you'll be taught that tautology does not necessarily follow from having only one name for a thing. You refer me to the Standard. It says: "That form of pleonasm in which the same word or idea is unnecessarily repeated; unnecessary repetition, whether in word or sense; useless iteration." Genung's Rhetoric is quoted as saying: "Tautology is the repetition of the same sense in different words." According to that you may repeat a thing a thousand times without tautology, unless the repetition is *unnecessary*. And if you have a case of tautology in which "bee-keeper" is used five times, it will none the less be tautology if you substitute "bee-grower" for "bee-keeper" one or more times. I'm with you in favor of a wealth of words "capable of expressing fine shades of meaning," but one word for each shade of meaning is enough. [Like the woman,

I am of the "same opinion still." Either your glasses are cross-eyed or else mine are. Say—I wonder if they were cross-eyed when you were measuring that distance of the brood from the top-bar.—ED.]

MR. T. W. COWAN writes, "Mr. Root need not send all the way to Europe for a sight of the automatic smoker, for I have one here, and some time ago sent you a sketch of it. It may be called 'ein Vulkan,' but it is 'un enfumoir mecanique.'" Mr. Cowan is evidently under the impression that the Vulcan is identical with the automatic that he has. That they are widely different in outer appearance Mr. Cowan will easily understand when I tell him that in the picture the Vulcan looks much like a coffee-pot. The pictures of the two smokers give the impression that the Vulcan occupies much less space, but pictures are often deceiving as to relative sizes. [In a letter which Mr. Cowan sent to me in reference to this same smoker, he said: "I have had it now for some years, and have used it occasionally; but we never want a *continuous* stream of smoke." Italics mine. I think Mr. Cowan is correct. A continuous stream is too much of a good thing. A mere breath of smoke over the top of most colonies is sufficient, and far better than too much. I can not conceive how any fanning-mill device can be constructed without making it bulky and unwieldy. There is nothing that will "raise the wind" more easily and satisfactorily for bee-smokers than a light bellows.—ED.]

"BREED FROM THE BEST" should be the slogan, not merely of a few queen-breeders, but of every bee-keeper, during the present year. That without settling the question as to what is best; whether it be F. B. Simpson's queen of moderate increase that will most surely perpetuate its qualities, or the one whose workers store the largest surplus without regard to other qualifications. Settle what you think is best to your own liking, but don't keep right on another year allowing most of your increase to be from inferior stock. [I had a notion to have all this put in italics; but what would be better would be for you to repeat it about once in three or four months. Say—our observations in the apiary do not quite coincide with those of Mr. F. B. Simpson when he says, breed from moderate queens. The breeding of bees and the breeding of horses may be too different propositions. We, like Doolittle, make it our practice to breed from the *best* queens—that is, those that show up the best in honey, and the progeny of those same queens is pretty apt to duplicate those of its grandmother; at all events, the bees show themselves to be decidedly superior to the common run of stock. If we breed from moderate queens we get *moderate* results. If we breed from the *best* queens we get the best results; and considering the fact that we are rearing queens by the thousand every season, this should, we believe, count for something.—ED.]

I'VE BEEN TRYING to learn how thin a syrup bees would take. In a feeder away from the hives I put one part sugar and three parts water; then one of sugar to four of water, and so on. When it came to one of sugar and ten of water, the bees still took it, but were rather lazy about it. They were gathering at the time a little from flowers. In a time of entire dearth of nectar they might take a much weaker solution, and I suspect that, when the feeding is done early enough, it may be well to use considerably more water than sugar. [Yes, I think you are right. The thinner the syrup, up to a certain point, the more thoroughly will the bees digest it, and the less it is liable to candy in the combs in winter. The old rule, to feed three parts of sugar to one of water, for winter feed, was a mistake, and I think that was the cause one winter, at least, of our losing bees very heavily. We have never had any sugar syrup candy in combs, containing one part sugar and one part water; but it now strikes me that if we feed early enough, as you say, three parts of water and one of sugar would give better results still. It would be interesting to know what the proportion of saccharine to water is in ordinary nectar. Can some professor of chemistry tell us?—ED.]

REPLYING to your footnote, page 588, Mr. Editor, I do not mean that every one of my frames is filled clear to the top-bar with brood, nor that the majority of them are; but I do mean that it is a common thing, and that the average is so near to the top that there is little more to be gained. Certainly they are very far from your estimate of being "filled about two-thirds full of brood." I have just been out to the apiary, and, without picking out any particular hive, took the one my assistant happened to have open. One of the frames had brood touching the top-bar, and an outside frame had brood $1\frac{1}{4}$ inches from the top-bar. I'll give you the distances of brood from the top-bar for the whole eight frames: $\frac{3}{8}$, $\frac{3}{8}$, $1\frac{1}{8}$, $\frac{3}{8}$, 0 , $1\frac{1}{4}$. That makes the average distance between brood and top-bar .585, or a little more than $\frac{1}{2}$ inch. Of course, I measured at the point where brood came nearest the top-bar. My assistant protested that I ought not to have taken a colony that was not very strong, but one of the strong ones with more of the frames having brood touching the top-bar. It is only fair to say that it seems to me that, years ago, the combs were not so crammed with brood, and you have not been here in summer for several years. [After having read over your footnote very carefully to see there was no "joke" about it, I went to interview our Mr. Wardell, who has been a bee-keeper for over thirty years, and I believe he is one of the best queen-breeders in the United States. Said I, "Mr. Wardell, how full are the average Langstroth frames filled with brood, in our apiaries?"

"That depends on the time of year," he answered. "Before the honey-flow, when the bees are breeding strongly, the brood

will be much closer to the top-bar than during the honey-flow. During the swarming season there will be on an average about two inches or more of honey circling over the brood."

Now, Dr. Miller, it was the *swarming* season I was talking about; but I had forgotten that there might be more brood before that time; and therefore I do not see how you, during the height of the honey-flow or swarming season, which you ought to be having, should have brood clear up to the top-bar; or is it possible you have been having no honey-flow, or a very light one, and that the brood is heavier than it would be if your bees were heavily at work? and that reminds me that, perhaps, you agree with Mr. Wardell. Is it possible that your bees at the time you had been making your observations were *not* in the height of the honey-flow? Remember, the point I was trying to make was that a Langstroth frame was just deep enough to allow the bees during the honey-flow to put two inches of honey above the brood in each frame; that this amount of honey in six frames of the brood-nest, and a full frame of honey on each outside, would make the bees very loath to go up into the supers. I argued that, if a frame were made shallow enough to cut off this two inches, then the bees would go into the supers sooner, or more readily; so you can see I was referring to the honey-flow or swarming season. I can not believe yet that your locality is different from ours, or that your bees do differently from ours. It may be I shall have to make a special trip to Marengo to be convinced by my own eyes; or, better still, perhaps you and that sister of yours had better come to Medina and we will "convince" you.—Ed.]



Gathered at last is the ripened sheaf
Into the storehouse of the Lord;
Done is the work of fourscore years,
Nobly earned is his great reward.

Gone is he now from the human hive,
Labors all ended and cares laid aside;
Fold on his breast his benevolent hands—
They pass away, but their actions abide.

REVUE INTERNATIONALE.

I am glad to find the following concerning the late Dr. Dubini, whose death, so far as I know, has not been noticed by American bee journals. He was one of the great men of our times—a cedar among fir-trees, like the late Mr. Dadant. Perhaps more than any other two men these have established the principles of rational bee-keep-

ing in Europe—the former in Italy and the latter in France. Mr. Ed. Bertrand says:

We have to deplore the departure from this world of still one more of the veterans of movable apiculture. The venerable Dr. Angelo Dubini of Milan, is dead, at the age of 89, in consequence of a fall in his house.

He had been for about 38 years attached to the Grand Hospital of Milan; and after a brilliant and useful medical career, in the course of which he published several important works which established his reputation, he retired at the age of 65 years. But he had too much activity of spirit to remain idle. An amateur experimenter with bees, he devoted his robust old age to the advancement of apiculture.

He became, in 1868, one of the founders of *L'Apicoltore*, and worked for that journal assiduously till his death. Understanding several languages he kept abreast with apicultural literature, and published monthly, under the name of *Spigolature Apistiche* an analytical review of foreign journals, which was greatly appreciated, as were all the rest of his contributions to the journal. He left a very complete treatise, "The Bee and its Management," which has gone through two editions.

The loss of this gifted man and untiring worker, one of vast erudition which he devoted to the service of others, will be keenly felt in Italy and by all outside of Italy, who, like ourselves, have had the privilege of knowing personally the man, or who have been able to appreciate his works.

AMERICAN BEE JOURNAL.

E. E. Hasty's review of the apicultural world is always readable because interesting. As a critic he is "the good-natured man" of whom Goldsmith wrote. No stings about Hasty. Some funny literature consists of nothing else.

In regard to selling honey, C. P. Dadant has the following spicy paragraph. The remarks were made at the recent Chicago convention:

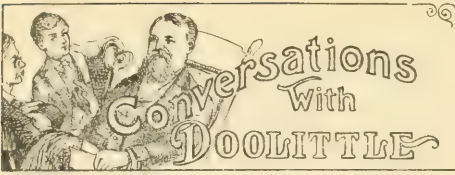
To sell honey, as these gentlemen say, you have to be known. Make yourself known to people; you have to hang on, keep hammering at it; don't get discouraged; keep fighting and disputing. Don't be afraid when people say your honey is adulterated. Don't be afraid to fight. I do some hard fighting when they say my honey is not pure, and generally I convince them that it is pure. I had a gentleman say to me once that my honey was not pure. I told him he didn't know what he was talking about, and I knew that he didn't know, and he certainly must know himself that he didn't know. I convinced him that my honey was absolutely pure and he never doubted my word after that, and was very nice to me, although I called him a fool.

BEE-KEEPERS' REVIEW.

Mr. Hutchinson gets out a very fine issue for July—not but that the *Review* is always fine, but the one in question is especially so. Among the editorials I notice one on co-operation among bee-keepers, and the suggestion contained in it ought to be urged till acted on. Here it is:

Organization and co-operation are the order of the day to an extent that never has been equaled. Perhaps I am telling tales out of school, but our enterprising neighbors across the line, the Directors of the Ontario Bee-keepers' Association, are gathering information with a view to forming a honey association. Colorado already has such an association in excellent working order. California is trying to do something in this line. Perhaps the National Association may yet do something to assist in co-operation in marketing honey.

In view of the great extent to which the bee-keepers of most European countries have carried the matter of organization for mutual help, it is a pity that our National Association does not have 20,000 members.



COMB HONEY HAVING A WATERY-LOOKING CAPPING.

"Good morning, Mr. Doolittle. Rainy again this morning."

"So it is, Mr. Barber. Day before yesterday we had a fine day, though rather cool, and the bees improved it, securing more nectar than at any time before this year; and I had strong hopes that we might get some surplus honey yet; but as it has now rained the most of the time for thirty-six hours, with the mercury hovering about fifty and below, I have about given up hoping for any surplus honey, unless, perhaps, it is gotten from buckwheat. It is now the 30th of June, and clover is on the wane. This, with no prospect of any thing from basswood, and the bees not having a chance to get out of their hives more than once or twice a week, gives a gloomy outlook. But we'll not dwell on the unpleasant things. What was it you wished this morning, Mr. Barber?"

"I came over to have a little talk with you regarding the watery appearance of my honey last year. During the fall of 1900 I Italianized a part of my apiary, and during the season of 1901 the colonies which were so Italianized gave me section honey which looked bad on account of the capping to the cells having a watery appearance. The capping seemed to lie on the honey, and the looks hurt the sale of it. My blacks never gave such looking honey. Is this a characteristic of the Italian bee?"

"During the seventies and early eighties this matter of watery-appearing honey was the subject of much discussion among bee-keepers at conventions and elsewhere, for at that time the Italian bee had obtained a good foothold in the United States, and very many condemned them on account of their being so economical of wax and space as to give their comb honey the appearance you say yours had."

"But you don't think that part of the trouble was in their using less wax, do you?"

"Yes, I certainly do. Had you noticed more closely you would have discovered that the cappings not only lay on the honey, as it were, but the capping itself contained less than half the thickness of wax that is used by the black bees."

"I did not think of such a thing; but if this is so, there would be quite a saving in this way."

"Yes. And this caused a difference in opinion regarding Italian bees, they being condemned by many comb-honey men on account of their bad-appearing honey, while

those who used the extractor were loud in their praise of this quality; 'for,' said they, 'as less wax is used, less honey will be consumed for wax secretion; and this will give us the amount of honey which the black bees use in secreting wax for us to turn directly into cash.' Bear in mind that this was at a time when extracted honey was selling at from 20 to 25 cents a pound. Hence it came about that the Italian bee was especially recommended for an apiary worked for extracted honey, while the blacks and hybrids were thought by some to be the better bees for comb honey."

"I do not wonder at this. But are all Italians alike in this matter?"

"No. Not long after this it was noticed that certain strains of Italian bees, and those coming from mothers several generations off from imported stock, gave combs of a whiteness which nearly if not quite equaled those produced by black bees, and many bee-keepers set to breeding in this direction till the success along this white-capping line was so great that scarcely a thing about this matter has appeared during the past twelve or fifteen years in our bee papers."

"Perhaps the queens I obtained were direct from an imported Italian mother. If so, would this not be an objection to further importation of these bees?"

"This was, at that time, an objection made by some against the further importation of bees from Italy, they claiming that, by such importations, we would have a new warfare to begin till we could breed this watery-capping propensity out of each importation. While I think there was something in this objection at that time, still, so far as I know from personal experience, and several facts gleaned from others, a great advance along the line of white capping of comb honey has been made in Italy as well as in this country. You must have gotten hold of some of the worst bees along this line, if they were from queens that were imported from Italy at the present time."

"You have no doubt that they were Italian bees, have you?"

"There is a possibility that they were not. With me, the Cyprian bees were far worse along this watery-appearing comb line than the Italians; while the Syro-Italian bees were the worst I ever saw—so much so that their comb honey was hardly salable at any price without explanation. It had such a nasty appearance, especially that produced from any other blossoms than those giving white honey."

"I would have supposed that this trait in the Italians would have doomed them in the eyes of all comb-honey raisers."

"It undoubtedly would had it not been for the many good qualities of the Italian bee. But the Italian bee is in this country for its many good qualities, and it is here to stay for all time. But few years more will elapse before this objection we have been talking about will be a thing entirely of the past. But allow me a question:

When did you notice this watery appearance—when you took it from the hive, or mostly when you were getting it ready for market?"

"Some when taking it from the hives, but much more when I was sorting it for market, as I inspected it more closely at this latter time."

"Somewhat as I expected. And I think you are blaming the Italian bee, in part at least, for what you are yourself to blame for."

"How could I be to blame?"

"Where did you store your honey between the time it left the hive and when you commenced to crate it?"

"In what we call the 'cellar kitchen.' Was not that a good place for it?"

"Just the place to give honey which was nicely capped when it left the hive a watery appearance a month later."

"Why so?"

"Because honey is very susceptible to moisture. In storing it in this damp room the honey took on moisture, thus becoming thin, and expanding till it reached the capping to the cells, when it would have the same appearance as did that where the bees placed the wax next the honey when capping it. Did you notice any such thing in crating as the unsealed cells around the edges of the sections leaking?"

"Yes. These cells leaked so badly that I kept a moistened sponge to take it up. But this was because the cells were unsealed, was it not?"

"Did the honey run from these cells when taking it from the hive?"

"Not very much. Why?"

"This shows that it was thinner when crating than when taken from the hive, and suggests what every bee-keeper has found out sooner or later—that the only proper place to store honey is in a dry, warm, airy room. By storing in such a room, even watery-appearing honey will be improved."

"Well, indeed, I am glad to know this; and this alone will more than pay me for coming. And now I must begone; but before I go allow me to ask if you have noticed what Dr. C. C. Miller said in GLEANINGS about you and Brown getting mixed up on that prime-swarm first-swarm matter."

"Yes, I noticed it and found the time today from other pressing work to look the matter up, and Dr. Miller is right. Doo-little did get all mixed up, I suppose owing to overwork, which brought on careless reading and thinking, the same thing I have accused others of. I am *sorry* for this, and hereby apologize to you, and through you to Dr. Miller and the readers of GLEANINGS, for it is no more than fair that, where a man makes a mistake in public, he should confess it publicly. It seems that I quoted Dr. Miller rightly; but after that my brain worked in a wrong direction. Again I say, I am *sorry*."

Borodino, N. Y.



BASSWOOD TOP-BARS.

The Kind that do not Crawl around the Yard; a Rejoinder to Dr. Miller and the "Naples Dutchman."

BY S. A. NIVER.

Mr. Editor:—I am in such a state of utter bewilderment that, to put it into plain United States, I don't where I am at. Shall I laugh at Dr. Miller's Straw as a joke, and "sass back" at that Naples Dutchman, or "go way back and sit down"?

It all grows out of the casual mention of Morton's preference for basswood to pine for top-bars, and Dr. Miller's Straw about its twisting and warping to the extent of crawling about the yard. That was the first hint I had ever received in regard to any such objection to the use of basswood for top-bars, or for whole frames as to that matter. Of course, the genial sage of Marengo would not say they crawled about his bee-yard in such a positive way unless he had observed such antics—would he? Then he read Greiner's "roast" (page 420), where he says, "When I hear a man . . . make a statement of so-called facts, which are not facts at all, it naturally weakens our confidence in the man; and to recommend basswood top-bars is a case of the kind." Why use basswood that will warp and twist all out of shape? He knows, because he tried it "only once."

Plainly it was my safest way to take to the woods and repent my folly in mentioning basswood top-bars, and lack of attention to the habits of such a crawling "critter," although I had used hundreds of them, and helped make them by thousands; so I went to Groton for a little rest from selling honey (rest for my customers as well as myself), with the resolve to see some twisting and crawling if any such circus was on the boards.

I went through the home yards, and examined those basswood frames, in brood-nests and supers; frames made entirely of that crawling wood, which had been in use for six years at least, to my certain knowledge. Mr. Editor, those frames are as straight and true as any pine frame "*in our locality*." Then I interviewed Morton's brother on the subject, and they never had noticed any tendency to warp or twist, although they had used them for years, and never had heard of any trouble with basswood frames from any one.

Now, then, where is the trouble? Is Groton basswood a different species, or are

some of us not careful enough in observing and writing up "*facts*"? This case seems to be about as simple and easy to get exact as one could well pick out; yet you see the radical difference of opinion of three experienced careful bee-keepers — Miller, Greiner, and Miles Morton—in regard to it.

If you should spring the question, "Is honey sweet?" you would expect Dr. Miller to reply that he "didn't know," and Greiner to say, "No, it's bitter;" from "natural contrariness;" but how they can lock horns about this matter of crawling top-bars is the question that is making me red-headed.

In regard to worms boring into top-bars when made of pine, Greiner says it is only when quilts are on them. True enough; but quilts or enamel cloths are on our frames always, when not covered with the surplus arrangements, and that very troublesome boring was the main cause of Morton's adopting basswood in place of pine—not because of price, as you seem to hint in the footnote to Greiner's article, and his use of them for several years is good evidence that Groton basswood does not warp, twist, or crawl, when used for top-bars as he used them.

Niagara Falls, N. Y.

[That's right—give it to Dr. Miller. Hit him good and hard; but, allee samee, I will take his side of the question, in this "locality" at least.—ED.]

QUEEN-REARING.

An Impartial Trial of the Different Plans; Importance of very Young Larvæ or Eggs; when Queen Larvæ are Lavishly Fed.

BY W. H. PRIDGEN.

It is evident that no plan yet devised for transferring larvæ or grafting cups meets with general approval, or is crowned with success until one becomes proficient in the method adopted. The fact that one may be more successful with a faulty method with which he has become proficient than he would be with a more simple and efficient one with which he is unacquainted, should be taken into consideration when testing different methods side by side. The quality of the resulting queen does not depend so much on the mode of transfer as it does on the condition of the bees to receive and nurse it, provided, however, said larva has been lavishly fed from the start.

It has been proven by various tests that more depends on the nourishment supplied for the first two or three days than is generally conceded, not only by the longevity of the queens and their offspring, but their prolificness as well. Grant that it is true that all larvæ are fed with food of the same quality for the first three days, and that one lavishly fed as a worker during that period would result in a first-class queen (which is very doubtful), still it is risky to

use the old, for it is well known that the quantity of nourishment supplied varies according to circumstances, and we are liable to select such as have not been kept floating in the food, although it may be abundantly supplied at the time of the transfer.

The fact that bees sometimes select larvæ two (and possibly in rare instances three) days old in cases of emergency or haste, when deprived of their queen (the instances being rare indeed when that three days old is selected, if younger be present) is no criterion to go by; for, although they are better judges of its previous treatment than we are, it is well known that they sometimes make mistakes in their selections, and our object should be not only to improve on queens thus reared, but aid Nature in doing better than she does as a rule unaided. This, every one of long experience sometimes thinks he does if he adopts a plan whereby newly hatched larvæ are used, and thereby leans to the side of safety, and removes the risk of using that which has been neglected during its early stages of development.

It is said that larvæ fed from the start as royal larvæ almost invariably result in superior queens to those first fed for two or three days as worker larvæ, and correctly too, for the reason that worker larvæ are never fed as lavishly as those intended for a queen, except for the first few hours, if at all, as one can prove to his own satisfaction by comparing the difference in the amount of food surrounding larvæ in natural queen-cups at swarming time, and the quantity fed to worker larvæ of the same age.

Another test is to give queenless and broodless bees a comb containing eggs ready to hatch, or newly hatched larvæ, and note the difference in those intended for queens, just as soon as there is a sign of the construction of queen-cells over them, compared to the rest of the same age; and although this is just the treatment needed when larvæ of an advanced age are to be transferred, still quite a difference in the supply of food will be noticeable.

When an egg in a natural queen-cup falls flat on the base of the cup in the act of hatching, food is found already provided, and the larva is kept floating in the food from the start, to the extent that it will often float to one side of the cell if the latter be placed on its side, and especially the third or fourth day.

It recedes from the stale as fresh is added in its immediate touch, and takes up only the liquids or juices best suited to its perfect growth and development, leaving the gluey or jelly-like residue in the bottom of the cell, without ever returning to that from which it has receded; and the conclusions are that none but the fresh liquid parts is suited to the wants of an intended queen. It is not here claimed that good queens can not be reared when jelly several days old is used to prime the cups; but its use has been abandoned as useless by many who claim that they are equally successful when the

transfer of larvæ only is made without first priming the cups, as the bees receiving them *must* be in a condition to add fresh food immediately around the larva in either case. If the jelly used in priming the cups is very stale it is removed before fresh is added, and no doubt proves to be a disadvantage.

As before stated, an intended queen larva does not consume any but the fresh food supplied immediately around it, when sufficiently fed to result in a perfect queen, and none of the food in the cell is suited to its wants except that, in its immediate touch, any more than sour milk or clabber is suited to the wants of young of any kind.

It may be argued that drone and worker larvæ leave none unconsumed, which is true; but it can also be remembered that the same treatment will not develop a queen, and, besides, the supply is never so far in advance of the demand in their case as to sour to the extent that that does which is receded from in a queen-cell.

Now, this argument should not be construed as condemning the use of royal jelly in priming queen-cups, or as claiming that good queens can not be reared when it is used; but all depends on the use of larvæ that have been lavishly fed from the start, and the immediate attention given the same by the bees, which is the secret of perfect success, regardless of the mode of transfer or the construction of the receptacle used.

Larvæ of a much more advanced age can be successfully used if they are transferred from a comb given to bees minus unsealed brood, when it contains eggs only, even if a virgin queen be present, as such larvæ are usually lavishly fed; but the limit then should be under rather than over two days old; whereas, if it is to be selected promiscuously from the combs of a full colony from appearance only, the limit should be lowered still more.

In the hands of those who have become proficient in the use of such tools, quite young larvæ can be successfully transferred with toothpicks, tiny metal ladles, camel-hair brushes, etc., with the advantage of not having to mutilate the combs from which they are taken.

But we now propose to describe a plan whereby any thing from an egg just laid to a larva of the oldest limit can be transferred, and it obviates the necessity of any priming whatever, as the food is transferred with it. Like the Alley plan of cutting the combs into strips and allowing the bees to construct the cells over the eggs or very young larvæ, by which we can secure queens second to none reared by any of the forced methods, and equal to those reared naturally under the most favorable conditions, if the bees be properly prepared for cell-building it requires the mutilation of the combs, but, fortunately, old ones, and only a very few of them in a season, as the same set can be used repeatedly, as will be explained further on. This plan combines all of the good points in every plan yet given to the public, and of all of them combin-

ed; it carries with it only the one mentioned above.

The same objection—that is, the cutting-out of a piece of comb to be shaven down, was considered necessary years ago, when making transfers *a la* Doolittle; but now many who still use the toothpick, and transfer a larva only, simply lift it from the bottom of the cell, and thus overcome the necessity of mutilating the combs; but the plan is attended with the objection of having to handle a whole comb, which is liable to attract robbers, besides getting things besmeared with honey while making the transfers.

THE BEE IN LAW.

Statutory Enactments.—Article 7. Continued from Last Issue.

BY R. D. FISHER.

9. SAME, COUNTY INSPECTOR OF BEES.

(a) Laws of Colorado, approved April 16, 1891 (Laws 1891, p. 41), provide for the appointment by the county court, upon application of the Colorado Bee-keepers' Association, or of any five actual bee-keepers resident in any county, of a competent, actual bee-keeper, resident of said county, to be county inspector of bees. Application shall be based upon information and belief that the disease known as foul brood, or any other contagious or infectious disease, exists, and must name the actual bee-keepers of the county, so far as known to the applicants.

(b) *Oath of office*.—The person so appointed shall, within five days, file with the clerk of the court his acceptance of the office, and the usual oath of office. The inspector shall hold office during the pleasure of the court, and until his successor is appointed and qualified.

(c) *Bee-keepers Give Notice of Foul Brood—Penalty*.—A bee-keeper or other person aware of the existence of foul brood, either in his own apiary or elsewhere, shall immediately notify the county inspector, if there be one; if not, the Secretary of the Colorado Bee-keepers' Association, of the existence of such disease, and in default of so doing he shall, on summary conviction before a justice, be liable to a fine of \$5.00 and cost.

(d) *Duty of Inspector; Owners; Treatment*.—On receiving notice from any source of the existence of the aforesaid disease the inspector shall forthwith inspect each colony of bees and all hives, implements, and apparatus, honey, and supplies used in connection with such apiary, and mark those he believes to be infected, and notify the owner or agent thereof; and the latter shall, within five days, faithfully apply and carry out such treatment of the diseased colonies as may have been prescribed by the State Bee-keepers' Association for such cases, and thoroughly disinfect, to the satisfaction

of the inspector, all hives, houses, combs, honey, and apparatus used in connection with any such diseased colonies; or the owner or agent may elect, within the same time, to destroy said bees, hives, comb, comb-houses, and apparatus, by fire or burial.

It is the duty of the inspector and his assistants, after inspecting hives or fixtures, or handling diseased bees, before leaving the premises and proceeding to another apiary, to thoroughly disinfect their person and clothing.

(e) *Box Hives—Transfer.*—The inspector may, in his discretion, order any owner or possessor of bees dwelling in box hives in apiaries where the disease exists (being mere boxes without frames), to transfer such bees to movable-frame hives within a specified time, and, in default of such transfer, the inspector may destroy or order the destruction of such hives and the bees therein.

(f) *Penalty for Selling Diseased Bees or Infected Appliances.*—Any one who knowingly sells, barter, or gives away, moves, or allows to be moved, a diseased colony or colonies of bees, be they queen or workers, or infected appliances, he shall, on conviction before any justice, be liable to a fine not less than \$50 nor more than \$100, or to county-jail imprisonment for a term not exceeding two months.

(g) *Selling Infected Property: Exposing Infected Things—Penalty.*—Any person whose bees have been destroyed or treated for foul brood, who sells or offers for sale any bees, hives, or appurtenances after such destruction or treatment, before being authorized by the inspector to do so, or exposes in his bee-yard or elsewhere any infected comb honey or other infected thing, or conceals the fact that said disease exists among his bees shall, on conviction, be liable to a fine of not less than \$20 nor more than \$50, or imprisonment in the county jail not less than one nor more than two months.

(h) *Disobedience, and Resistance to Inspector—Seizure.*—When an owner or possessor of bees disobeys the directions of the inspector, or offers resistance, or obstructs said inspector in his duty, the latter may apply to a justice for special constable, to proceed with him to the premises of such owner, and assist the inspector to seize all the diseased colonies and infected appurtenances, and burn them forthwith, and, if necessary, cause the arrest of the said owner or possessor, and have him dealt with according to the provisions of section (g).

(i) *Inspector must read or Deliver Copy of Act.*—The inspector shall read over to such person the provisions of this act, or shall cause a copy thereof to be delivered to him, before proceeding against him for its violation.

(j) *Annual Report.*—The said inspector shall include in his annual report to the president of the Colorado State Bee-keepers'

Association a statement of his work during the preceding year, the number of colonies inspected, the number diseased, the number destroyed by fire or otherwise; the names of the owners, and the localities where found, and the amount paid to him for his services and expenses for the year.

(k) *Compensation—Payment by County.*—The county inspector of bees receives four dollars per day, and two dollars for each half-day necessarily and actually employed, together with his necessary and actual expenses while so employed, payable by the county as other claims against the county are audited and paid.

10. SAME.

(a) *County Inspection of Apiaries.*—Laws of California (Laws of 1901, Chap. XXIV., Stat. 1901), provide that, upon petition of ten or more resident property-holders and possessors of an apiary or place where bees are kept, to the board of supervisors of any county, stating that certain or all apiaries within the county are infected with the disease known as "foul brood," or any other disease infectious or contagious, and injurious to bees, their eggs, or larvæ, that an inspector be appointed by them to supervise the treatment of said bees and apiaries, the said board shall, within 20 days, appoint a suitable person, who shall be a skilled bee-keeper, inspector of apiaries. Upon petition of a like number of resident property-holders, and possessor of an apiary, the board may remove said inspector for cause, after a hearing.

(b) *Duties of Inspector.*—It shall be the duty of the inspector in each county to cause an inspection to be made when he deems it necessary; and if any foul brood, infectious or contagious disease injurious to bees or their eggs or larvæ be found, he shall notify the owner or person in charge of said apiaries, or place where bees are kept, and he shall require such persons to eradicate and remove such disease or cause of contagion within a certain time to be specified. Notice may be served by an inspector, or by deputy, or after the manner of a summons in a civil action. Any and all apiaries or places where bees are kept, etc., found infected with disease are declared to be a nuisance; and neglect or refusal of the owner or agent to abate the nuisance within the time specified, it shall be the duty of the inspector to abate the same by treatment or destroying the infected hives, bees, and comb. The expense thereof shall be allowed by the board of supervisors, and paid out of the general fund of the county.

(c) *Salary.*—The salary of the county inspector of apiaries shall be three dollars a day when actually engaged in the performance of his duties.

(d) The act of 1883, approved March 30, providing for inspection of apiaries, etc., is hereby repealed.

11. SAME.

(a) *Bee Inspection; Inspector.*—Laws of Utah (Rev. Stat. 1898, Sec. 139 to 143 inclu-

sive) provide for the appointment by the county commissioners of one or more qualified persons inspectors of bees for their respective counties. Such inspectors shall hold office for two years, qualify and give bond. No appointment is made except on petition of a majority of the bee-keepers of said county.

(b) *Pay of Inspectors; Tax on Bees.*—Inspectors shall be paid out of the county treasury for services actually rendered, at such rate per day as the board of county commissioners may fix. Each colony of bees is assessed, and taxed in the same manner as other property is assessed and taxed, and collected by the county.

(c) *Duties and Powers of Inspector.*—All hives of bees in each county shall be carefully inspected at least once each year by a county or district inspector, where such inspector has been appointed; and, at any time upon complaint that disease exists among the bees of any person, the inspector to whom complaint is made shall immediately inspect the bees said to be affected. He shall have authority to take charge and control of diseased bees and their hives, and the tools and implements used in connection therewith for treatment; or to destroy such bees, broods, or hives and their contents, or implements, as may be infected. The owner may question a decision of the inspector concerning the presence of disease, and may appeal to three arbitrators selected from among bee-keepers of the county, one each by the owner and inspector, and the third by the two chosen, whose decision, concurred in by two of the number, shall be conclusive as to the condition of the bees at the time of such examination.

(d) *Obstructing Inspector—Penalty.*—Any person who obstructs or hinders an inspector in the performance of his duty shall, on conviction thereof, be deemed guilty of a misdemeanor, and fined for the first offense not less than five nor more than twenty-five dollars; and for additional offense, any sum not exceeding fifty dollars.

12. SAME.

Inspection of Apiaries; Inspector; Appointment, Duties, and Compensation.—Laws of Wisconsin (Wis. Stat. 1898, Sec. 1494) provide for the appointment, by the Governor, for a term of two years, a State inspector of apiaries. He shall, when notified of the existence of the disease known as foul brood among apiaries, examine all such as are reported, and all others in the same locality, and ascertain whether or not such disease exists; and, if satisfied of its existence, shall give the owner or person in charge of such apiaries full instructions as to the manner of treating them. Within a reasonable time after making such examination the inspector shall make another examination thereof; and if the condition of any of them is such as, in his judgment, renders it necessary, he may burn all the colonies of bees and all the comb necessary to prevent the spread of the disease. Such

inspector shall, before such burning, give the notice provided for, and otherwise proceed pursuant to the provisions of section 1492b (covering the slaughter of diseased animals). The inspector shall make a yearly report to the Governor, stating the number of apiaries visited, the number of those diseased and treated, and the number of colonies of bees destroyed, and of the expenses incurred in the performance of his duties. Said inspector shall receive four dollars for each day actually and necessarily spent in the performance of his duties, and be reimbursed in any sum not to exceed five hundred dollars per year.



WE regret to learn that our old friend and correspondent, Mr. Thaddeus Smith, of Pelee Island, Ontario, Canada, died on the 11th of June, after a short illness. Mr. Smith was a good writer, and never wrote till he had something to say. His articles that appeared frequently for the last few years will speak for themselves.

IN speaking of the method of harvesting wheat in California and in other western States, I omitted to mention that wheat in Central California does not have to be bundled or shocked up. These harvesters cut only the top of the grain. The straw is left standing in the field, and is plowed under. Another fact that is somewhat interesting is that the grain can be cut any time after it is ripe, without danger of its shelling out.

I NOTICE that, as bees start out in the morning, they will crawl up on the hive-front, then drop off backward, and fly for the fields. I think this habit is due largely to the fact that sometimes they start out so early in the morning they can not see till they get above surrounding objects like weeds and grasses. They will crawl up four or five inches, and then fly, and the habit continues with them, even though old Sol has got pretty well up.

IN our July 15th issue, in calling attention to the article of Mr. W. K. Morrison, we stated he was an employee of the British government. Mr. Morrison was formerly connected with the Agricultural Department of the West Indies, making a tour of some of the islands for the purpose of developing bee-keeping, but retired from that position something over a year ago. In a late letter he states that he is planning a

trip into some of the South American countries in the near future.

DR. GANDY AND HIS ASSERTIONS.

THERE have been some doubting Thomases among our subscribers regarding the statements made by Dr. J. L. Gandy in our last issue. I expected that; but having heard from another party that there was an extensive bee-keeper in the vicinity of Humboldt, and having difficulty about getting Dr. Gandy to write at all, I felt inclined to publish the article. While I said I was stumbled and staggered by some of his statements, yet I thought if he had 25 acres of catnip and as much of sweet clover within range of each of his apiaries, he might be able to get the results he claimed. At all events, I thought by publishing the article we should soon know the facts. Sure enough, another fellow-townsmen of Dr. G. writes under date of July 28th that he was "completely upset" when he read what his "celebrated townsman" had done as related in last issue of GLEANINGS. If what this correspondent says is true, some of the statements made by our previous correspondent and by Dr. Gandy himself were somewhat exaggerated, to say the least. Perhaps I should have withheld the article and made further investigation. It is not denied, so far as I can see, that Dr. Gandy is wealthy, owning a great deal of land, and that he keeps a good many bees; but those big yields per colony, our correspondent discredits as out of proportion for the locality. I am writing Dr. Gandy and others, and will report in our next.

BRUSHED OR "SHOOK" SWARMS.

BRUSHED swarms have been tested by our friend and neighbor, Mr. Vernon Burt, of Mallet Creek, Ohio. He tried the plan on a small scale last year and on a larger scale this year, and both seasons the experiment was attended with satisfactory results. According to his experience, brushed swarms, as described by Mr. Stachelhausen, not only gather more honey, but will not cast a natural swarm subsequently. Indeed, the best colonies he had for comb honey were the "shook" bees. In a word, the *modus operandi* is this: The parent hive is removed from its stand. Another hive with frames of starters, and the supers of the parent colony, are put back on the old stand. The combs are brushed or shaken in front of the entrance, causing the young bees as well as the old ones to go into the hive. The parent colony minus every bee is then set off on another stand. No harm results, says Mr. B., because the hatching bees in warm weather will take care of the other bees.

Our friend thinks the success of the plan lies in the fact that the young bees as well as the old ones go to make up the "swarm;" and the reason why it is ahead of the natural swarm is because these young bees—in fact, all the bees of the old colony—are in a new hive on the old stand, ready for

work. He also believes the brushing or shaking, causing the bees to rush into the entrance has the same effect in stimulating their energy as when they come out naturally and are hived.

Another feature is that the "swarming" can be timed to suit the convenience of the apiarist. Natural swarms will come out on Sundays, and often when the apiarist is away or when he has other important work.

When Mr. Stachelhausen told me in person regarding his experiments with brushed or "shook" swarms, and how satisfactorily it worked, and when, later on, I met Mr. Louis Scholl, and he likewise gave me a favorable report of it, I was determined in my own mind that I would give the matter a thorough test in our own yard the following summer; but I had entirely forgotten it in the rush of our bee work until Mr. Burt told of his success with the plan. From what Mr. B. says of it (and he is a bee-keeper whose opinion I value highly) I am inclined to think the brushed or shook-swarm method of producing comb honey and controlling swarming is a real acquisition. If we could, by so doing, control 95 or even 90 per cent of all our swarming, and crowd a big powerful colony down into a single story of a brood-nest—my! what big crops of comb honey we could produce in a season! and think how much this would be worth at outyards where we can not really afford to have an attendant!

M. A. Gill, in the *Review*, one who operates 512 colonies, has the following to say:

I must confess that the longer I practice the shaking-off plan, when colonies are going to swarm *any way*, the better I like it. Much has been said about a colony of bees being a unit, and that we can not sort them with proper regard to age, but I find that is more in theory than in practice. I find little if any difference between natural or shaken swarms that are now two weeks old, and it's certainly a great advantage in out-apiaries. Not over ten per cent of my bees, that are in eight-frame hives, are going to offer to swarm this season.

THE DENVER CONVENTION.

I WOULD call attention to the excellent program (in another column) prepared for the next session of the National Beekeepers' Association, Sept. 3—5, Wednesday, Thursday, Friday. Never before were more elaborate preparations made for a big convention than at this time. I happen to know something about the hospitality of our Western friends, and I think I am safe in saying they will outdo every other locality or city that has hitherto entertained the National. There will be a banquet, a trolley ride, and, of course, a feast of good things at the regular sessions of the convention. Bee-keepers of the East should make a special attempt to go to this great meeting. There will be two Roots there—Huber and I—and the editors of the *Beekeepers' Review* and *American Bee Journal* will be in attendance. Dr. Mason and Dr. Miller will be there also. If you can't afford to go so far for bees alone, don't forget that some of the *grandest mountain scenery in the world* is right in sight of Denver, and

that Pike's Peak is within a few hours' ride. For a first-class outing I can not imagine any thing better than a trip to and into the Rockies.

A FEW POINTERS ABOUT SELLING HONEY ON COMMISSION.

DON'T send a large shipment of honey to a new commission house—that is, new to yourself—even if they are in a prominent position in the "Honey Column" of some bee journal. Sometimes a large shipment of one grade of honey, all to one place, will swamp that particular market. In order to get rid of it and move it off quick the commission man will sell it at any price, irrespective of quotations in the papers. It is usually advisable to send a small lot first, unless you know the house and have dealt with it for years. Then try it a little more; but don't—*don't*—"bite" on the highest quotations. Better take a conservative figure from a reliable *old* house than to try to get a cent or even a quarter of a cent more of a new and untried firm.

If you get into a complicated deal with a commission house, and can not get satisfactory returns, be sure to communicate to us the facts.

When you write to a house, sending a sample, and they write you in return that they can get for you such and such a figure, *be sure to keep that letter*. If your honey should subsequently be sold for a less figure, you have proof of what you were offered on the sample. In a general way we may say, carefully preserve all correspondence with a business house. If a firm is not quoted in the bee papers, go to your nearest bank and find out its financial rating.

Sometimes it is better to sell on commission than to make an outright sale. If the house or person is not reliable, better sell on commission. Better still, do not sell at all. Take plenty of time to write before shipping, and do not forget to inquire of us, as we may be able to save you half your salary.

SELLING COMB HONEY.

It is very difficult to determine with any degree of certainty just what the tendency of the market will be for the next six months; but one fact we should like to bring before our readers, especially those of the Eastern States. For several years there has been a good demand during the months of August, September, and October for No. 1 and Fancy white honey, and prices have ranged very good; in fact, we have paid the highest prices at the very beginning of the season simply because so many bee-keepers delay getting their honey ready, and there is not enough to supply the demand. Now, we do not believe in having every one rush honey into the market at the very outset, for this would have the effect of lowering prices; but we do say that a good many bee-keepers who are situated so they can put their honey on the market quickly have

lost money in years past by holding it at too high a price, and until cold weather came on. Care should be taken to use sufficient time to see that the honey is in its best possible shape when it goes to market. You should also study the different market reports; and if you care for our advice when you are ready to ship, if you ship to a commission house we shall be glad to give you our opinion of the different markets, on request. We do not care to express an opinion on individual buyers other than to state what we know of their general standing; but there are times when the markets of some of the cities are so overloaded that it would be folly to send there; and while this market may have been a very good one in previous years, some other market may be much better this year; and if we can assist you in giving you such information we shall be glad to do so. While we are buyers of honey ourselves, and, of course, like to purchase it at as favorable prices as possible, if we can not handle your honey we are very glad to assist our subscribers in disposing of their crop to advantage elsewhere.

HOW TO BURN A BAD CASE OF FOUL BROOD.

ONCE when treating a case of foul brood, or, rather, burning it up, at an outyard, I started a big blaze in a brush-heap near by; but to make the blaze hotter I threw on a quart of coal oil. Then I placed the hive as near the fire as I could, picked out the combs and the bees, and threw them one by one into that raging flame. When the bees flew up (for it was night) they would go right into the fire, of course, and that was the end of them. Then I took the hive, held it up by means of a pitchfork, and thoroughly scorched the walls inside and out. Next in like manner I treated the cover; but while the fire was raging I could see the melted wax running down between the fiery embers to the ground. I marked the spot, and when the brush-heap burned down I raked the hot coals right over that place, then pawed over the ground with a rake and pitchfork. I made up my mind that I would thoroughly disinfect the ground; and the next morning I found the live coals had been so hot that the clay was turned red—in fact, it was turning into common brick. I had no doubt the whole thing had been disinfected, including the hive.

I speak of this incident because foul brood is showing up in many localities; and while the boiler-furnace is the most unique place I know of in which to burn up combs, yet one can secure just about as good results by means of a bonfire providing he throws on some coal oil. The hives and combs must be *burned at night, when the bees are all in the hive*. I do not advise burning bees as well as combs except in very bad cases, or when it is the only case known in the bee-yard. There is always danger, when shaking bees on to foundation, that some of the bees, finding every

thing strange in the new hive, will go into another hive near by; and it is advisable, therefore, when the first case appears, to burn bees and combs, and scorch the hive inside and out. If the hive is an old one I would consign it to the flames. In that case I would remove the cover and dump the hive upside down right on to the hottest part of the fire. Last of all, throw the cover also, with adhering bees, into the fire.

['HONEY-CROP REPORT; PRICES, ETC.

UP to the time of going to press the season is very various all over the rain-belt, or, more specifically, the clover-belt. In Wisconsin, Illinois, Michigan, New York, Ohio, Pennsylvania, and the New England States, the season has been good and poor. In some localities in the States named, the honey-flow has been very heavy. In others it has been almost an absolute failure. There is going to be more white-clover honey this year than last, I think, but the season will be late. The clover-belt will produce mixed basswood, sweet clover, and red clover all combined, although there will be localities as formerly where nothing but white clover will be gathered. But it is too early yet to give an accurate forecast.

There has been much rain this year, especially in this part of the country, and in consequence the land has been too wet for the mower to go over it. As a result, the timothy and red-clover fields have been allowed to stand much longer than usual, with the result that the bees have profited greatly from this. I never saw the bees work on red clover better in our locality. At this writing, July 26, the bees are working well in the fields of red clover at our out-yards, and even white clover is hanging on more persistently than I ever saw it before.

There will be very little Western honey, and I doubt if any of it finds its way to Eastern markets. Colorado will have less than half a crop; Arizona the same; and Southern California will have little or no honey. Even Texas is not faring quite as well as usual. But Texas honey almost never finds its way into the Northern markets, because the people of that State are large consumers of their own product. Florida will do fairly well; but from the best reports it is hardly up to the usual quota of honey.

Taking every thing into consideration the markets throughout the East ought to be fully as firm as last year, and, if any thing, a little more so. Very little new honey has been offered so far. As nearly as I can judge, supers are being filled; but the sections are not completed, and there will not be much honey on the market before about the first of September, although a little will be offered, probably, about the 15th of this month.

Considering the general advance in food stuffs and the decided scarcity of Western honey, the prices on Fancy extracted and

comb *ought* to be higher than last year. As yet it is a little too early to give a definite idea of the honey-flow east of the Mississippi.

To give the reader a fair idea of the outlook in Colorado and Southern California I publish two letters from among hundreds of reports received. Mr. Frank Rauchfuss is Manager of the Colorado Honey-producers' Association. He is in close touch with every locality in Colorado, for nearly all of the honey goes through his hands before it goes to market; and if any bee-keeper is well posted as to the crop conditions of his State, it is Mr. Rauchfuss. He writes:

Friend Ernest:—During April and May the prospects were quite good for a honey crop; the bees were building up fast, and were getting ready to swarm. We knew that there would be a shortage of irrigating water; but as we had good honey yields in former years when there was a scant water supply this did not worry anybody much. June, however, opened up with unfavorable weather—cold days and nights, and considerable wind, and, as a consequence, there was hardly any swarming except in a few localities in Weld and Larimer Counties.

We received reports about June 20 that bees were commencing in the supers, from the following counties: Boulder, Larimer, Weld, Morgan, Logan, Bent, Mesa, Otero, Montrose, Delta, and portions of Jefferson and Arapahoe Cos.; on June 25 and 26 we had another cold rain which seemingly stopped the honey yield in all parts of the State, and the bees did not go into the supers again. In some localities there has been a little honey coming in again for the past seven or eight days, but hardly enough to do good work in the sections.

It is out of the question now to expect even half a crop for the State. To show that bee-keepers have given up hopes of getting any more surplus, I want to relate you a few instances. The other day a bee-keeper who runs 260 colonies offered his *whole season's* crop to any one who would run the chances, for fifty dollars; and another from a different locality offered his half-share in 110 colonies for a box of c gars.

I begin to fear that the crop failure will have a tendency to keep quite a few Colorado people away from the meeting this fall.

Mr. G. W. Brodbeck, at my special request, has made quite a thorough canvass. His letter was received just before our last issue went to press, but was crowded out; but more recent advices show that the situation has not materially changed. Mr. B. writes:

Friend Root:—Additional information which has come to hand since my last report simply confirms the statement made in regard to this season's honey crop. In some localities the bee-keepers are feeding. Orange County, which, as a rule, never fails in producing some honey, even during dry seasons, and which, a recent report stated, would have ten carloads of surplus, will have about three to this season's credit; Los Angeles County, about one; Riverside, about three; San Diego, scarcely any. San Bernardino, something over one; and a great many that have reported are feeding back. If all of the honey produced in Southern California this season were held by the bee-keepers, every pound of it could be marketed here at home. Three years ago we secured just about the same amount, and before the next season opened honey was imported to Southern California from other sections. Our bee-keepers are very lax in working up their home market.

As nearly as I can ascertain, Central California will have a fair crop as usual; but I think most of the honey from that portion of the State will be marketed in that State, although a little of it may go east.

N. B.—Be sure to send in reports as you have been doing, dear friends, all along the line. You have done splendidly so far.

NOTES OF TRAVEL.

More Snap Shots at the Rambler; J. H. Martin at Home; Something about the Possibilities of Raising Wheat in California; the Enormous Fertility of the Soil for Growing Alfalfa; Wheat-raising of the East Compared with that of the West; a few Figures.

BY E. R. ROOT.

In our last issue I omitted to give you a view of that beautiful fig-tree under which was placed Rambler's dining-table, and where we ate the Rambler flapjacks. A neighbor's boy happened to come along, and at my request he pressed the button on my little camera while we sat eating.

J. C. McCubbin appears in the rear with a tin cup which he is putting to his mouth. The redoubtable Rambler sits on a hive-supper having perforated zinc tacked on the

ture of himself. It was all right for *him* to go around and snap his camera at other people; but when another "kodak fiend" put in an appearance to shoot him, it was another matter.

The next three views show him as I was able to catch him. The large figure represents him just as he was coming out of his extracting-house, for I stood off at one side with my "gun," and waited to see him come out in order that I might shoot before he could stop me. The next view shows him just as I came up to him from behind; and, knowing that the "fiend" was close on his track, he quickly whirled and put his hands up to his face, remarking, "Oh! no, you don't." But I did.

The last shot shows him in his characteristic attitude humped over his bicycle. Mr. McCubbin, myself, and the two boys were following after with the family horse. I



RAMBLER'S DINING-ROOM AND WORK-SHOP.

bottom. Your humble servant was given the seat of honor in the form of a rocking-chair with a cushion. Just beyond my right sit the two little McCubbin boys. It was a gloriously hot day, and the friendly shade of the magnificent tree was most grateful; and I did not at all wonder that the Rambler found it agreeable to put his dining-table under its benign protection.

Then back of us stands an ordinary work-bench. On it are edged tools of various kinds. During this time of the year it is never necessary to put such things under cover, as it does not rain; so the Rambler could eat his meals and make up many a little fixing or convenience for the apiary right outdoors, but under the shade of this beautiful tree.

I have already stated that the Rambler made some protest about my taking a pic-

quietly suggested to Mr. McCubbin that he "whip up" and let me get along in range so that I could snap the kodak on the Rambler on one of his genuine rambles, and the result is before you.

Like all instantaneous pictures these views are not sharp and clear; but they will give an idea of how our Rambler lives and goes about the country, for he is indeed a veritable Rambler. He comes by the name honestly. But little did he dream, when he first began to write under the *nom de plume* of "Rambler" that that series of articles was to continue for over a dozen years, and that he would cover during that time fifteen or twenty thousand miles in order that the readers of GLEANINGS might see the world, and understand bee-keeping as it exists in this great and beautiful country of ours. But not content to keep himself within the

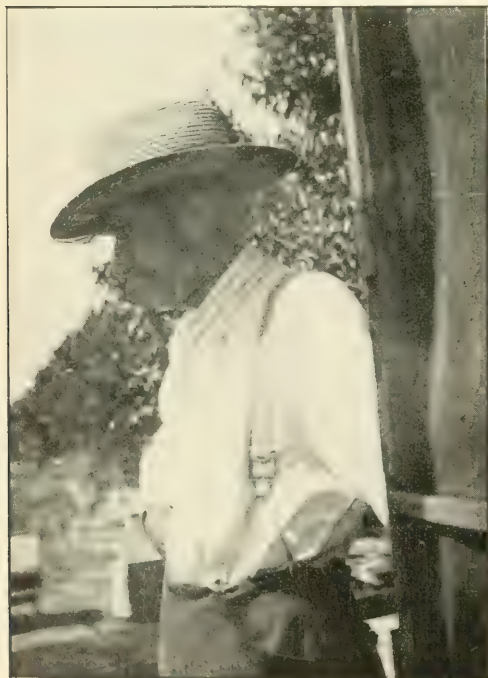
confines of the United States he has taken a hop, skip, and jump, and is now in Cuba. Where will he wander next?

On the occasion when I photographed the Rambler on the fly, as he was humped over on the bicycle, our little company was going out half a mile or so from Reedley to see a combined reaper, harvester, and thrasher at work in one of the enormous wheat-fields in the vicinity; for it should be understood that the fields in California and other portions of the great West are not measured by the five and ten acres, but by quarter-sections, half-sections, and whole sections. A whole section represents a square mile, or 640 acres, so that you can get an idea of the size of some of these enormous wheat-fields. But if you can imagine four or five of such fields put together you can form some idea of the immense acreage of wheat that is grown. Obviously the sickle, the cradle, or even the combined mowers and reapers of the East, would be too small to handle such vast areas of golden grain. New conditions demand larger and more elaborate machinery.

When our little company reached the field we saw a procession of thirty mules. This was followed by the combined reaper, harvester, and thrasher, all in one; and (would you believe it?) it was cutting a swath about 20 feet wide, and it would cut, thrash, and sack 40 acres in one day, or what would be the equivalent of 1500 bushels of sacked wheat. Four men handle the whole outfit, and as this machine goes up



"OH! NO, YOU DON'T."



"NOW YOU THINK YOU HAVE DONE IT."

and down the field the great sacks of wheat are tumbled off in the rear. As there is no liability of rain, the grain is allowed to lie in the field until it is all cut, and then it is gathered up in wagons. It would take four or five hours for the machine to go around the field and come back to the starting-point, and therefore we had to plan our visit so as to catch it near the roadway where we were located. As it came nearer and nearer with its whirr of complicated machinery the Rambler and I stationed ourselves in position to get snap shots. It being a little late in the day I did not succeed in getting such a picture as I wished; but the reader will get some idea of the enormous size of the outfit from the picture I am able to present from one of my photos.

In some cases a traction engine is used for pulling the outfit; but mules are preferred in some places to the engine, because the soil is too soft to support the great weight of it. It was possibly so in this case.

Now, dear reader, please stop and think a minute. A field of wheat in the East is usually not larger than ten acres; many of them are only five acres in size, and even less. How in the world farmers on this side of the Mississippi can compete with such extensive agriculture as this (and I am told it was a fair sample of what can be done in many places in the West) is beyond my comprehension. Were it not for

the fact that the railroad companies charge high rates for carrying the grain across the country I do not believe there would be a



THE RAMBLER RAMBLING ON HIS BICYCLE.

blade of wheat raised in the East; so there is some comfort, at least, in high freight charges.

But to show you what this soil will do, let me give you a few figures of how alfalfa will grow in this central portion of California. From eight to ten tons of it, I was told, could be cut in a season to the acre; and cattle will thrive better on a ton of alfalfa hay than they will on an equal weight of timothy. If it were not for high freight rates, just imagine the farmers of the East trying to raise beef in competition with the West! and were it not for freight rates, and the fact that Eastern consumers prefer

Eastern honey, how would our Eastern beekeepers compete with their Western brethren?

But suppose the day should come — and I think it will — when freight rates will be lower — would it stop wheat-raising in the East? Possibly. But no great calamity, I imagine, would follow from this. The great West can not raise many of our Eastern crops. Timothy will grow only in places in the West, and for the growing of fine horses timothy hay is preferred, because alfalfa "pods" the animals too much. For this reason there will always be a strong demand for timothy.

There are certain fruits in the rain belt, certain grains, and certain vegetables, that will not thrive westward; and the time will come, I verily believe, when the West will grow one kind of crops and the East another. In those elysian days which we hope for, when freights will be reduced down to the point where perhaps they ought to be, there will be an interchange of commodities; and the farmer of the East and the ranchman of the West will both thrive, and this country will grow richer, and the people happier and more contented.

RAMBLE 207.

A Visit at Glen E. Moe's Bee-yard.

BY RAMBLER.

Thirty kilometers further on the calzada we find another progressive bee-keeper in the person of Glen E. Moe. This gentleman and his wife came to Cuba in the winter of 1900, and for a greater portion of the time have lived in army tents. Mrs. Moe is living a sort of heroic life, like Mrs. Somerford and Mrs. Hochstein—quite thoroughly isolated from the society of American ladies. Mr. Moe and the other bee-men often have Americans of the masculine gender call upon them; but it rarely happens that an American lady finds her way into



FOUR MEN HARVESTING AND THRASHING 1500 BUSHELS OF WHEAT IN A DAY; HOW 'TIS DONE IN CALIFORNIA.

this portion of Cuba. The lady portion of the household should have the more sympathy, for their isolation is more complete. But living near a Cuban town of some size, she has the benefit of such society as the town affords; and I am assured that there are some excellent people, even in these rural towns.

Mr. and Mrs. Moe are both ex-school-teachers, and, later, ex-butter-makers, and from the Coggs-shall country, West Groton, N. Y. Like so many Americans, Mr. Moe, aided and abetted, I presume, by Mrs. Moe, desired to branch out into something new, or where they could get on better than in old New York. Cuba was very prominently in the public eye then, and to this island they came. Mr. Moe did not come here with the remotest idea of going into the bee-business. He had other irons in the fire; and as the other irons were of a disappointing nature he began to cast around for others. Harry Howe had been in Cuba and in the bee business, and, withal, was an old acquaintance of Mr. Moe, in West Groton. It was no wonder that, after stopping with his old

but while there was loss in one way there was gain in another. Much of his leisure time was spent with Harry Howe, and he was all the time gaining experience. His experience as a butter-maker probably was a help to his taking readily to the bee business; for the butter-maker must attend to small details, and use due vigilance in manipulation.

Bee-books and periodicals were purchased and carefully studied, and Mrs. Moe became as much interested in the bees as her husband; and when they moved out to their apiary she was quite as much of a worker in it. Like all Americans fresh from the States they had to contend with foreigners and a strange tongue. It seems to a Cuban that his first duty is to bleed the "Americano" who may fall into his hands. Prices go up to fabulous figures. If you wish a load hauled, the price is double or treble what it would be to a Cuban. At the store the provisions you buy are a few cents higher than to Cubans. The average—yes, below the average—American grocer will favor a new customer by selling to him at



MR. AND MRS. MOE IN THEIR HOME APIARY.

friend for a while, he caught the bee-fever, bought eleven colonies from a Cuban, and in those Cuban hives. Soon after he bought a few more, making a total of 33 colonies. He found a location for these three miles from Candelaria, in a splendid grove of mango-trees and other shrubbery. Here he pitched his tents and commenced to grow.

At first the growth was slow and under many difficulties. His new hives and supplies were long in arriving from the States. His bees in native hives swarmed, and were hived in all manner of nondescript boxes;

very reasonable rates. He looks forward to future trade and a chance to beat him afterward. The Cuban grocer takes no such look ahead, but skins you the first chance. The reason is probably found in their version of the old proverb, "A bird in the hand is worth *two* in the bush." Their version is, "One bird in the hand is worth *cien* (100) flying."

Being ex-schoolteachers it was not many months ere they were picking up the Spanish language; and now after two years' sojourn, they are both quite proficient in its

use, and have gotten on to the tricks of the storekeepers and others, and submit no more to exorbitant prices.



MR. AND MRS. MOE IN THE TENT.

In spite of the delay in the arrival of his supplies, Mr. Moe increased his 33 colonies up to almost 170; and through the winter honey-flow he secured 2500 gallons of honey (30,000 lbs.), and quite an amount of wax. This may be considered a success for a novice during his first year, and in the face of several disappointments. It was a better yield per colony than was secured by some of his more experienced neighbors, and said neighbors attributed a good share of his luck to a very peculiar circumstance.

About the time Mr. Moe came to Cuba, Mr. Coggs shall came also with several hundred colonies of bees. It is not often that a novice can rub against such an extensive and successful bee-keeper as Mr. Coggs shall. The most of us have to go to a convention and content ourselves with a mere glimpse of the great men, or listen to a few words entirely foreign to what we want. But here was the chance of a lifetime, and Mr. Moe improved it by frequent visit, and jotted down many a valuable point; but somehow upon one of his visits he came into possession of a pair of Coggs shall's old shoes. They were well worn, of course, and during that first year he came far from filling the great bee-man's zapatos (that is shoes in Spanish), but faithfully did the very best he could; and, though the fit was rather loose, the result has been magical. The artist shows you how the shoes fitted the first

year; but this is an excellent climate for growth, and I will show you something of a different nature later.

Although Mr. Moe did not get rich the first year of his bee-keeping, his little success gave him great encouragement; and as he and his wife worked together with the bees their enthusiasm kindled; and, like all Cuban bee-keepers, they began to have visions of many apiaries and thousands of colonies. They figured out the summer campaign for increase, made their wax into foundation, and ordered hives. If there is any thing that Mr. Moe delights to do it is to build up; so by diligent manipulation during the next six months, from April to October, his 170 (or about that number) were increased to 600 colonies. The home apiary contained 400, and an out-apiary 200. I present a photo of the home apiary, shaded by a variety of tropical trees. It may be called a model apiary, for every thing in it used for bee management is up-to-date.

The tents are quite numerous, and are the living-tent—one for cooking, another for extracting, and one for the help, visitors, etc. I introduce Mr. and Mrs. Moe at the entrance to their living-tent. Their tent is well supplied with books and papers, and tent life a greater portion of the year is quite comfortable. The only positive discomfort is during the rainy season.

Along with the other periodicals on the tables of Mrs. Moe, Mrs. Somerford, and Mrs. Hochstein I noticed the latest fashion magazine; and should you call upon them you will find their dresses up-to-date, and they are posted on all the frills and tucks that are new.



FAGAFONES FOR COOKING.

It will interest your lady readers, and perhaps a few bachelors, to learn how the cooking is done in Cuba. American stoves are almost unknown in the rural districts. A cast-iron utensil called a "fagafone" is used, with charcoal for fuel. There are various sizes, and used according to the size of the family.

As shown in the photo, Mrs. Moe uses two, and this seems sufficient for a large family, or, say, for five or six persons.



The lady readers will look for an oven; but the Cubans never bake bread. Every little town has its bakery, and bread is not very expensive. Rice and beans are the staple articles of food, with potatoes; then there are sweet potatoes, mologas, and yuccas, all tubers, and palatable.

Until oil is cheaper and stoves more common the fagafone will hold its position in the Cuban kitchen. More will be said about Mr. Moe's apiary in the next Ramble.

THE PECULIAR SEASON.

Thin Honey and Artificial Evaporation; Some Comments on American Bee Journal Editorials.

BY S. T. PETTIT.

Mr. Root:—In compliance with your wish for reports of honey crop to date (page 553), I will say that the weather conditions here appear to be closely related to the conditions in all the northern and eastern portions of the United States as described by yourself; but there seems to be this difference: The clovers here contain lots of honey; and whenever the bees get a chance at them they rush the nectar at a great rate

(I am speaking of my own locality); but the rain and the high humidity of the air cause the nectar to be very thin; and, owing to that great humidity of the atmosphere, the bees can not ripen their honey sufficiently to cap it. The comb-cells, both in extracting-supers and sections, are only partly filled; and thus in many cases the queen is crowded out, and the bees get disgusted, and swarm without finishing a section. Then when given in the brood-chamber, either starters or combs and their own unfinished sections. Just as soon as the brood-chamber is filled, and it doesn't take them long, they swarm again, leaving very few eggs or little brood, as the combs are nearly full of thin honey, too thin to finish the sections with, or to cap. I have thought of extracting the thin stuff, and, later on, feed back for comb honey; but I fear the comb honey thus produced would be ill-flavored, and possibly the whole thing might sour before feeding back, so I could not risk that. Of course, if one had combs in abundance they could be given the bees as storage, awaiting a change in weather conditions.

It may be that some one will suggest that I use my evaporator, figured in your excellent A B C book for many years. This prompts me to say that, for several years after I hit upon that evaporator (the cut in GLEANINGS is quite imperfect), the air generally was quite dry, and the evaporating went on nicely; but in a damp season or damp spell of weather the honey took up moisture from the air, and became thinner instead of thicker. So for a good many years I have depended upon the bees to do the evaporating; but, poor things! they seem to feel beaten this season.

No evaporator here this season, except it be assisted by artificial heat, can be of any use. The safe way is to depend upon the bees and lots of supers filled with drawn combs. The conditions will surely change before winter.

We are all interested in finding the queen. In looking for her I first take out a comb near the center; and in the forenoon I work toward the east, and in the afternoon I work toward the west. Working thus I feel pretty sure of catching her on the first half of combs lifted out, and I don't have to chase her clear across the hive.

On page 544 you ask, "But why should bees put wax in the bottoms of the cells?" First, to polish them; and, second, to store it as they do other things of value. Many old queen-cells are cut down and thus stored.

On page 435, *Amer. Bee Journal*, under the caption "Do not leave the sections on too long," the editor tells us how to get the sections all finished; but if I had to follow the directions I should never take comb honey. This pulling the supers to pieces during the honey-flow is just awful. I pity the poor bees and their good owner. Now, if the colonies are *strong* my best wishes would say, "Just try my system; use the

wedges or their equivalents and my dividers." Last year my son and I took thousands of sections. Mine in Aylmer averaged over 100 sections to the colony, and, with but very few exceptions, the outside sections were beautifully finished. In many cases the choicest sections were right next the dividers. Brother York's editorials are generally of the very best—well chosen, well written, and right up to date; but this one is sadly astray. I quite agree that the sections should come off soon after the white-honey flow ceases. Here where the honey-flow is short and sharp generally, I leave all the sections on until the close of white honey. I almost forgot to mention the danger of candying as one of the objections to extracting thin honey, and then feeding it back to produce comb honey.

Aylmer W., Ont., Can., July 10.

[Your peculiar season was not essentially different from ours, and we are still having to a great extent that same "freaky weather." There is this difference, however, that our honey ripens readily, as we have very warm days in between those of rain.

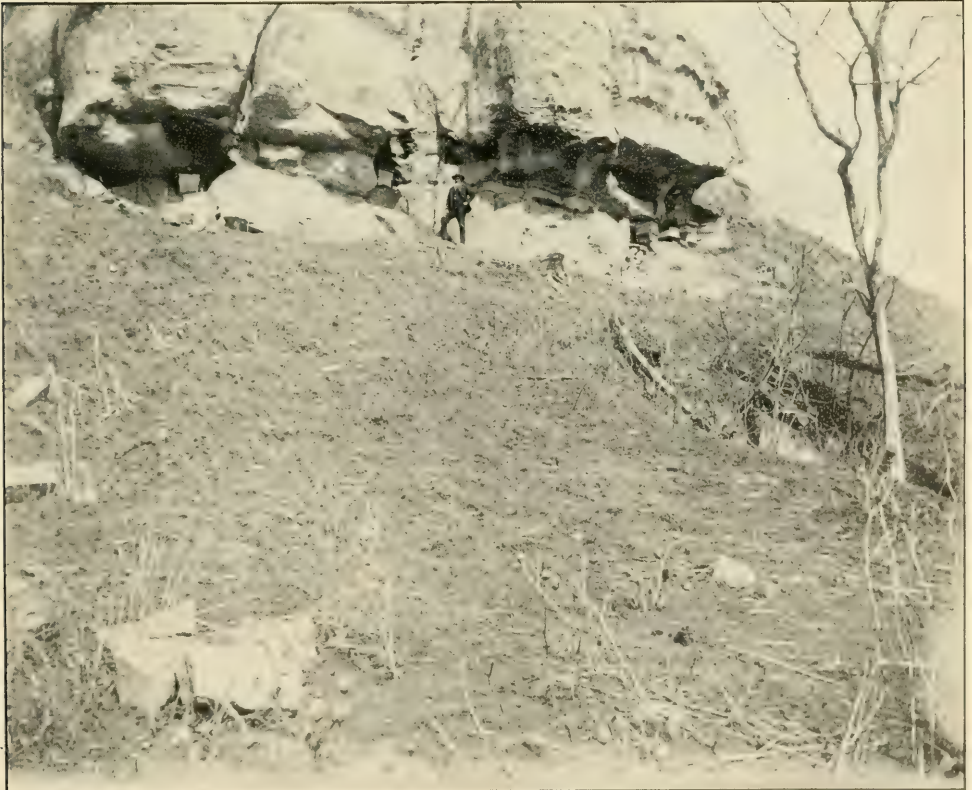
With regard to our method of producing comb honey and getting all the sections in

the super filled, I would state that I have been trying that plan, or a modification of it, rather, and I believe your ideas are all right. A perforated divider or a fence, which in principle is the same thing, placed on each outside row, makes a wall of bees, or, we might say, a double wall of bees, so that the heat on the outside of the sections is often as great as in the center of the super. Bees do not do very good comb-building and storing in sections unless the supers are filled *full of bees*. They must be there to preserve the animal heat, even if they do not build combs. If there are fielders in proportion to the young bees that build comb and keep up the animal heat, there is bound to be comb honey, if there is a plentiful supply of nectar.—ED.]

A UNIQUE APIARY.

BY C. A. HARTLEY.

Probably the most unique apiary in this country is that of Seldon E. Bailey, who resides about a mile and a half back of Pomeroy, O., in a very fertile valley. He is a successful truck-farmer, but keeps a few colonies of bees, principally to furnish his own table with honey. Just in the rear



THE OVERHANGING-ROCK APIARY.

of his home is a high cliff of sandstone, facing the morning sun, with honeycombed cavities at the base. In the shelter of these cavities Mr. Bailey has twelve stands of bees, and it makes them an ideal home. It is comparatively warm in winter, and just cool enough in summer, and is always dry. The accompanying illustration shows Mr. Bailey in the foreground.

Pomeroy, O.

THE BEST-KNOWN BEE-KEEPER OF TWO HEMISPHERES.

In Memoriam of Charles Dadant.

BY DR. C. C. MILLER.

As briefly mentioned in GLEANINGS for July 15, the death of Mr. Charles Dadant occurred July 16. A brief illness of 36 hours preceded his death, fulfilling a wish often expressed by him that he might never become childish, nor linger a burden to himself and others. Few men have lived to pass the 85th milestone of life's journey retaining such vigor of mind and body.

He was born May 22, 1817, in the village of Vaux-Sous-Aubigny, in the golden hills which separate Champagne from Burgundy. He was educated in the city of Lan-



CHARLES DADANT.

gres, and, later, went into the mercantile business. In 1863 he moved to America, and, prompted by the reports of the crops harvested by the noted M. Quinby, he began bee-keeping and soon found himself quite successful. When he reached America he knew not a word of the English language. He established himself on a small farm near Hamilton, and subscribed to Horace Greeley's paper, the *New-York Tribune*, denying himself any French books or paper. In this way he found himself compelled to follow the events of the day,

by the use of a dictionary; and so great was his ability to learn, that, although then 46 years of age, within three years he knew English well enough to write articles for the *Amer. Bee Journal*, then published in Washington. His articles on "How I became an Apiculturist," published in Vol. 3 and 4 of the paper for 1867-'8, were eagerly read. In 1869 he undertook the task of fighting the routine of European bee culture by writing for the French, Italian, and Swiss bee-keepers. In 1874 he published a small book, "Petit Cours d'Apiculture Pratique," in the French language. In 1886 he revised Langstroth's work, which was shortly after translated by him into French, and retranslated by others into Russian. He became so well known that there are very few countries where his name is not familiar to practical bee-keepers.

Notwithstanding the clear and forceful manner of Mr. Dadant in writing English (although it never became easy for him to converse in that language), yet he wielded a pen of still greater power when writing in his native language; and the fact that the movable hive is to-day so much in use among French-speaking people is not a little due to the vigorous writings of Charles Dadant, the Dadant and the Dadant-Blatt hive being among the most common in France of movable-frame hives.

In this connection it is not out of place to say that his son, Camille P., bids fair to become, like his father, a power at long range, for he has lately begun to furnish monthly articles of ability and interest to that standard French bee journal the *Revue Internationale*.

In 1874 Mr. Dadant took into partnership with him his son, C. P. Dadant, and together they increased their apiaries till they reached the number of 500 or more colonies. They harvested at different times crops of 40,000 to 45,000 lbs. of honey. Later they went into the manufacture of comb foundation. In 1873 Mr. D. went to Italy for Italian bees, and became a most successful importer, having been the first to ascertain what was necessary to keep bees alive on such long journeys.

It is pleasant to know that the familiar firm name, Dadant & Son, is to be continued, the son becoming the senior, and the son's son, Louis C., the junior member.

[Charles Dadant, almost the last representative of the Langstroth and Quinby generation, was probably the best-known bee-keeper of any man in the world, for his writings have been read in both hemispheres. Langstroth wielded a great influence in America; but perhaps there is no bee-keeper in all Europe whose hive and system were more fully adopted than those of our late departed friend. He was a vigorous writer in English; but, as Dr. Miller says, his pen wielded a still greater power when writing French.

I met him some ten years ago, and well do I remember the cordial welcome he ex-

tended, and how, as I got into the carriage to drive to town, the old gentleman, with that warmth of feeling so characteristic of the man toward those he loved, leaned forward and grasped my hand and hung to it. I had not at that time written much on bees, and he knew me only through my father; but from his manner I took it he loved me because I was a son of A. I. Root, for indeed he and my father were very warm friends.

Years ago Mr. Dadant imported queens from Italy. Like all imported queens these were leather-colored and rather inferior-looking compared with the ordinary yellow queens of the same race in this country. It was not long before Mr. Dadant was accused of sending out hybrids for imported. At that time my father came to the rescue by saying that, if Mr. Dadant wanted to send out hybrids, he would mail mismatched Italian queens of a bright color rather than to send the dark-colored genuine imported of Italy which he did. This little act pleased Mr. Dadant, and I think he never forgot it.

Our business connection with the Dadants has always been of the pleasantest. Indeed, there are no better or more successful business men in our ranks than those same Frenchmen; and when they first advertised that every inch of their foundation would be equal to the samples, they lived up to the very letter of their guarantee.

I am not so sure but the death of Mr. Dadant will mean more to the bee-keepers of Europe than to those of America. Indeed, it is wonderful that he could wield such a mighty influence in modern apiculture at such "long range," and in a foreign country, even if it was his old fatherland.

It is gratifying to know that his son, Camille, is also able to influence, as did his much respected father, at "long range."—Ed.]

Whereas, we have this day received notice of the death of the venerable Charles Dadant, of Hamilton, Illinois, at the ripe old age of eighty-five years; and

Whereas, the services of Mr. Dadant to the science and art of bee-keeping have been of the first order, and his life has been a benediction to all who have been associated with him in business and social ways, therefore be it

Resolved, that we, the members of the Executive Committee of the Colorado State Bee-keepers' Association, hereby express our appreciation of his character and worth as a man and a friend, and that we unite with his friends and admirers everywhere in testifying to his worth.

Resolved, that the Secretary of this Committee be directed to transmit a copy of these resolutions to Mr. C. P. Dadant with the condolences of the Committee.

JAMES U. HARRIS.
FRANK RAUCHFUSS.
D. W. WORKING.

NATURE'S WAY.

Best Time to Rear Queens; Importance of Locality.

BY ADRIAN GETAZ.

Mr. Root:—Have you not been a little bit hasty in saying that queens raised in August may possibly be not very good because it is nature's way to have queens raised during the swarming season? Take the hives, for instance. It is nature's way to have the bees lodged in a hollow tree, away up from the ground. Why so? So far as I can see, for three reasons: Protection from their four-footed or two-footed enemies; protection from the cold by the thickness of the wood; protection from the hot sun by the foliage of the trees.

We now keep bees in square boxes close to the ground. That, certainly, is not nature's way; but if we can fulfill the three conditions named above—protect our bees against kicking calves or other accidents by a fence; protect them against the cold by an outer casing, or putting them into a cellar; protecting them against a too hot sun by some kind of shade, have we not fulfilled the conditions required by nature? And, after all, it is these conditions that are to be met, no difference in what way it is done.

Take the artificial queen-cells. If they are made of the proper material, of the proper size and shape, and placed at the proper place in the hive, why should they not answer the purpose as well? And they do.

You say it is nature's way to raise queens during the swarming season. That's true. But why? Because at that time the necessary conditions for raising good queens are present. Warm weather, plenty of food and abundance of bees, especially nurses. These are the conditions. Now, if we can bring about these conditions in August, why should the queens raised at that time be inferior to those raised in June? And, in fact, they *are* as good. Our queen-breeders raise queens throughout the entire season, and there is no difference between them as long as the conditions are favorable. But, on the other hand, an ordinary bee-keeper might not be as able to secure the necessary conditions as would an experienced and well-equipped queen-breeder.

After the above had shaped itself in my mind, the thought occurred to me that the "locality" must necessarily be considered. Here the honey-flow ends, practically, between the middle and last of July. I said "honey-flow," but honey *season* would be a better word, for it is a succession of small, very irregular, and very variable flows from a number of different sources. After that there is a period of dry and very warm weather, lasting until the middle or end of September, and, occasionally, later in October. That means two months during which the apiarist can raise queens, make artificial increase, etc., with full

success, if he manages it properly. The main point is to feed plenty.

But it is evident that, in northern countries, the case may be altogether different. There, when the honey-flow ceases, the weather may be already too cool, or the end of the season too near, to permit any such operations.

Knoxville, Tenn.

[In your first sentence you have evidently read into my footnote, page 536, more than I put in it. I did not say that "queens raised in August may possibly be not very good because it is not nature's way," but I did say this: "If one is not going to practice modern methods of queen-rearing, and expects to rear queens in the old-fashioned way, after the honey-flow, he will rear inferior queens as a rule." You will see there is quite a difference in the two statements. If one uses modern methods he can raise practically as good queens *before* or *after* the honey-flow as during the swarming season.

I have read over your article above very carefully, and I think that, in the main, I agree with you all through; and if you will read again my footnote on page 536, taking into consideration the *qualifying clauses*, I think you will see there is no real conflict. Understand me, I do not advocate following nature blindly and literally; but I do advocate having our modern methods incorporate some of the essential features of nature's ways. For example, the best queen-cells are, as a rule, built in strong colonies when the bees are well fed—that is, when stores are coming in. Obviously, we can not in practice have all the cells built during the swarming season. In our artificial methods we must imitate nature to a certain extent by feeding—get the bees up to a high pitch of prosperity. Again, when we make outdoor-wintering hives we must follow nature's plan, not to put our bees in an inaccessible hollow log fifty feet from the ground to get thick walls, but put them into a hive that will meet the requirements of man, and which will have the essential features of protection—such protection as we find in a hollow log, more or less porous, with rotten woody fiber between the bees and the outer air. When hens' eggs are hatched in an incubator, notwithstanding the whole plan is artificial the essential features of nature's way must be followed implicitly. The eggs must be turned just so often; they must be kept at a certain temperature; in fact, the incubator must do with those eggs just what the old hen does in a state of nature when she is left to herself.

When, therefore, we talk about following nature's ways, it should be understood that we do not follow her literally, but we adopt the *essential* features that she points out, and adapt them to our convenience. A box hive will get perhaps as much honey in *some form*, as the most modern single walled hive of the same capacity, but is not *convenient* for man.—ED.]

THE HUMMING OF THE BEES.

BY FREDERICK WEBLEY, M. D.

Sweet are the day-dreams of childhood
And the hopes of early years;
Then life is fair and beautiful
And the heart knows naught of fears.
At times, as I work and listen,
With a mind and heart at ease,
My childhood's days come back to me
With the humming of the bees.

Whenever I hear their murmur
I think of a garden fair
With lilies and pinks and roses
Lending fragrance to the air;
The birds built nests; gay butterflies
Came sailing over the trees,
And children's voices mingled
With the humming of the bees.

Oh! what would I give if only
I could hear those voices now,
And see the dear home faces lit
With affection's tender glow?
Sometimes but a slight suggestion
Will revive those memories,
And the past comes up before me
With the humming of the bees.

I can see the old surroundings
Of the house with ample lawn,
The rainbow spray of fountain,
The quaint sun-dial, the pet fawn;
Beyond the hedge stood the bee-hives,
And oft on the summer breeze
Was borne the scent of the lindens
And the humming of the bees.

A world so fair and beautiful
Could be made by Love alone;
And who can doubt our destiny
When the ways of Love are known?
For all life's blessings shall we not
Render thanks on bended knees
If songs of thankfulness arise
With the humming of the bees?

Sweet are the day-dreams of childhood,
And fair the ideals of youth;
But fairer is the character
Where the ideal forms in truth.
Our best hopes live in the future;
But dreams that will ever please
Come back to me as I listen
To the humming of the bees.

Santa Rosa, California.

BEE-KEEPERS' SONG.

BY HARRY LATHROP.

When apple-blossoms come in May,
And clover comes in June;
When bees can work from day to day,
In "soft and pleasing tune,"
When basswood comes in hot July,
And heartsease in the fall;
Then may we on the bees rely,
For food and raiment all.

But when the spring is cold and drear,
The apple-blossoms killed,
When clover fails to reappear,
With shining blossoms filled,
When basswood-flowers are scarce and dry,
And heartsease none at all,
We feel like sitting down to cry,
We're driven to the wall!

'Tis well for us we see most clear
The bitter with the sweet
Is mingled nearly every year,
To make our lives complete.
When clover fails her shining yield,
Then basswood comes along,
And autumn flowers in every field
Oft tune our thankful song.

Calamine, Wis., July 8.



PHACELIA AS A HONEY-PLANT.

Friend Miller:—In looking over your Straws for June 15, page 499, you ask concerning phacelia. More than 25 years ago, while I was gardener to Hon. W. Cothren, one season I filled a round seven-foot bed with phacelia to have the blue flowers to cut, it being one of Mr. Cothren's favorite color flowers; and, very much to my amusement, also to that of Mr. Cothren, the phacelia was very seldom cut, from fear of the bees that fairly swarmed upon it at all times. The bed was well manured from the cow-yard, the soil being partly of decomposed trap rock. The plants were rank, and clusters of flowers were fine. I saved and sent to A. I. Root, some time in the '70's, about a gill of clean seed, but I never heard from it. But, so far as I know, it is one of the most frequently visited of cultivated flowers. It is one of the few plants that can be used for a whole border by a walk—that is to say, a path 50, 75, or 100 feet from house to street, a border of 18 in. of sod next to the walk, then a 24-inch border of phacelia the whole length, is a beauty; but a solitary plant is a lonesome affair to deal with.

On page 500 I see your Straw on queens more than two years old being more valuable with more age. I have one in her fifth season that, three times this year, I have refused \$50 for, and she is keeping up her 7 L. combs solid with brood—one four years old and three of them three years old. Neither of them is for sale or trade. One of the three-year-olds is working in 60 $4\frac{1}{4} \times 4\frac{1}{4}$ 7-to-foot, with 9 L. frames with solid brood below. I really wish she would hold up on laying, as I think I should like her just as well in 1904 as 1902.

H. L. JEFFREY.

Woodbury, Ct., June 22.

[Dr. Miller comments as follows:]

Mr. Jeffrey evidently thinks that the phacelia that has been lauded by the European journals is the same as the phacelia of the florists in this country. I have all the time supposed it a different plant, but I should be glad to believe that he is right and I am wrong. I have had the phacelia of which he speaks, a beautiful flower, and a field of it would be worth a considerable journey to see. But is it the same as the forage plant of Europe? I have never heard of it as a forage plant in this country. Is it possible that so beautiful a flower has a forage value? Of its value as a honey-plant, there is no doubt. You know that, as a rule, bees do not pay much attention

to honey-plants if there be only a few specimens; but if you have only one or two phacelia-plants you will find them busily visited by the bees. The flower is so beautiful that at one time I kept it as a house-plant in winter. I can hardly believe that this beautiful flower and rich honey-plant is valuable for forage or we should have heard of it before this. As I think the Europeans got it from California, it ought not to be a hard matter to learn about it from Californians.

[Regarding the new colossal white clover, Dr. Miller says:]

There is no sort of question that the new white clover, "colossal Ladino," is any thing but a humbug. I have seven plants now coming into bloom that I raised from the same seed as that I sent you. One of the plants is nothing but the common white clover. Five of them have leaves like red clover, and the seventh has leaves that look like alsike, only they are as large as red-clover leaves. I inclose a leaf of each of the three kinds. You will see that the two larger kinds are fully as large as red-clover leaves. But the habit of growth is utterly unlike that of alsike and red clover, and is exactly that of white clover, for the stalk runs along the ground, and roots at intervals. The plant from which I plucked the red-clover leaf has one of its blossoms out nearly full, and it is a regular white-clover blossom of large size, but hardly so large in proportion as the leaf. The stem of the blossom measures eleven inches.

The question is, whether colossal Ladino has special value as a forage plant. Although as large as red clover it is recumbent, the stalk all the time hugging the ground closely, so I can hardly imagine that the crop would at any time stand more than ten or twelve inches high. Would that be high enough to mow?

C. C. MILLER.

[When father came home from Michigan for a few days he called my attention to this big (?) clover growing in one of the beds. He said the garden boys declared they could see no difference between it and ordinary white clover. The blossoms seemed to be just about the same in characteristics and size, but the foliage of some of it seems to be much larger than that of white. I say *some of it*, for it seems to vary greatly. We scarcely knew what estimate to put on it. But if I had bought 100 lbs. of it, paying a big price for it, I am not sure but that I should have pronounced it a humbug.—Ed.]

PHACELIA AS A HONEY-PLANT.

Mr. Root:—I have your ABC book, but in it I fail to find what I should like to know—does phacelia yield honey? In the spring of 1901 my wife received a package of mixed flower-seeds. She sowed these seeds just in front of the kitchen door. When they came up I began to make fun of her "ragweed" as I called it; but it soon

began to bloom, and then we noticed the bees seemed to be crazy over it the first thing in the morning and last at night. I sowed a plat this spring of about six square rods. It began to bloom about a month ago. Now there is a swarm on it all the time. I could find nothing like it in the catalogs, so I sent a sample to our agricultural college at Pullman. They gave it the name "Phacelia." Now, what I want to know is, does it yield honey enough to warrant me in plowing up my 1½-acre lot and sowing it to phacelia? I have it in alfalfa, but it doesn't seem to do well. I think it is too cold. I am on a creek bottom. I have 27 colonies now, and more to come.

A. S. THOMPSON.

Garfield, Wash., July 17.

MORE ABOUT PHACELIA.

[The following, from Mr. J. F. Sempers, will, perhaps, answer a good many points in doubt or in controversy referred to in the preceding.—ED.]

To Dr. Miller's query on p. 499, I would say phacelia represents a large genus of plants widely distributed. There are figured in Britton & Brown's "Flora of the Northern States and Canada" nine species whose combined ranges extend from Texas, Alabama, Virginia, and Pennsylvania, to Minnesota, Dakota, and Idaho, besides some fifty other species in the western part of North America. Probably several or all of the species are useful for bee-pasturage in their respective ranges.

Our one plant here, *Phacelia dubia*, I have never seen visited by bees, though it is quite abundant. Coming into bloom in May, when the main flow is in progress, it is probably ignored by the bees because of the presence of greater nectar-yielders—tulip-tree, raspberry, and white clover.

J. FORD SEMBERS.

Aikin, Md., July 22.

SWARMING WITHOUT QUEEN-CELLS; DO PRIME SWARMS COME OFF WITH VIRGINS? THE DIFFERENCE IN STOCK, AND HOW THIS DIFFERENCE ENTERS INTO THE SWARMING PROBLEM.

We should like to ask Dr. Miller if he is sure bees do not swarm without leaving queen-cells started; also, is it a fact that the young queens begin hatching out about a week after the swarm issues? Our experience is rather different. The present season we had 484 swarms led out by clipped queens, and in 25 per cent of those swarms there were from one to half a dozen virgin queens and more left in the hives. Working with clipped queens under such conditions was not a flattering success. With over four hundred colonies in one yard, and swarms coming out at the rate of twenty or more a day, what course would have been best to pursue under the conditions given?

M. W. SHEPHERD.

Hollister, Fla.

[We submitted the above to Dr. Miller for reply.—ED.]

No, I am not sure that bees never swarm without first starting queen-cells; for since the introduction of Italians it has been pretty generally taught that there may be such a thing as bees swarming without the starting of queen-cells. Cheshire says bees very rarely, and that in the case of yellow bees, swarm before queen-cells have been started. I think the *rule* is that the bees start queen-cells some seven to ten days before the issuing of a prime swarm, and I think the teachings of all the text-books agree with this idea. In my own experience I may say that I have known queen-cells to be started without any swarming resulting, but never in a single case have I known a prime swarm to issue without the previous starting of queen-cells. But I have no right to say that the experience of others must exactly coincide with my own, and others say there are exceptions to the rule.

"Is it a fact that the young queens begin hatching out about a week after the swarm issues?" I think all the authorities agree that such is the rule, with the exceptions, of course, as previously mentioned.

Having swarms led out by a clipped queen accompanied by one or more virgins is certainly a remarkable experience, the like of which, I think, has never before been reported—that is, if it is meant that this was the first issuing of the old queen. Such a thing might happen if bad weather delayed the issuing of the prime swarm for a week or so, but it hardly seems that such could have been the case with Mr. Shepherd's bees.

As to what I would do if I had twenty or more swarms issuing daily, a fourth of them having, besides the clipped queen, one or more virgins, I must say I really don't know. I suppose I should very likely do just about the same as you did, friend Shepherd. But I think I should try very hard not to be placed in such a predicament the second year. If I were working for extracted honey I would take the Demaree plan, put all the brood in an upper story, leaving the queen on foundation below, an excluder between. But if I were living in California I might not succeed with that, for Delos Wood says it is a failure with him every time.

I might try another plan that is recommended by Cowan and others. Before the colony reaches the swarming-point, take away all brood, leaving the bees on foundation, and putting the brood over another full colony. It is claimed that neither of the two colonies will then swarm.

I sincerely hope, however, that I may never be so situated as to be obliged to skirmish around after some plan to head off such outlandish proceedings.

C. C. MILLER.

[From my experience during the last few days while I have been out in the apiary among the bees I am convinced that this

swarming problem hinges somewhat if not largely on stock. During the early part of the season we were short of queens, and had to order from the South. The first queens that arrived were of the yellow stock, and a large number of them were put in the apiary. It was a remarkable fact that nearly all these queens were either superseded right in the height of the honey-flow, and the young virgins subsequently led off a swarm, or else the old queen would try to swarm out. As our queens were all clipped the queen would be disposed of, and subsequently a virgin and the bees would "light out." There is scarcely one of the colonies of this particular yellow strain that has any thing more than a one-story hive. But our imported leather stock not only are not disposed to swarm if it has any kind of fair show, but it will keep on storing honey, and the colonies having that blood are, as a rule, three and four stories high. On some of the hives there are two supers of full-depth extracting-frames and one of comb honey. It may be that abundance of room or large hives prevented the swarming; but this same leather-colored stock in single story eight-frame hives will store honey without swarming to a great extent. I do not mean in one breath to condemn yellow stock and to praise the leather-colored; but we have for years been trying to develop the non-swarming honey strains; and there is any amount of evidence to show that this selected stock is far superior in every way to some yellow blood. The trouble with many strains of yellow bees is, they are selected because of their color, and color is all they have. But when I say this I wish to say we have some yellow blood that are home stayers and good workers. But where we have one such yellow strain we have ten others of the leather bees that have been bred, not for color, but for business.

Now, then, to answer the query raised by Mr. Shepherd, my own opinion is, he has a stock that ought to be superseded by something better. If I mistake not, Mr. Shepherd is working for Mr. Marchant, who is a producer of extracted honey largely. If Mr. Marchant has bees that swarm at the rate Mr. Shepherd speaks of, when running for extracted honey, the queens ought to have their heads pinched and some other ones put in their places. It does not seem to me that modern methods should tolerate such swarming for extracted honey, although it may not be possible to curtail it when running for comb. But we all know there is a great difference in bees. Dr. Miller, when I visited his apiary, showed me here and there a colony that would far outstrip any thing else in the yard. They would not swarm, but keep on storing in sections; and I think nearly every apiarist has samples of these bees. I do not mean that our readers should send to the Root Co. for their stock; but let them select bees for business *out of their own yards*, and breed from them.—ED.]

CAN WE PREVENT BEES FROM CROWDING THE BROOD-CHAMBER?

We are having very dry weather here now, and the bees are doing but little work. I am using your Ideal super with all of my 25 colonies, and like them very much. I think the bees seal the honey in thin sections much quicker than where they build it thicker. Can you suggest some plan by which I can keep the bees from crowding the queen in the brood-chamber? Here we have a good flow of honey in April, then a moderate flow until July 15, and by that time the colonies are diminished in strength, some so they can not work to the best advantage. Do you think it would help to introduce young queens, say about May 1? I nearly always rear a few queens from my best colonies when they swarm, so as to replace any that do not suit me.

Hazlehurst, Miss.

J. S. WISE.

[This is a question that hinges a great deal on locality, and I do not know that I am competent to answer it, for conditions under which you are placed; but it strikes me I would test on a limited scale the large brood-nest with a large frame. The Jumbo or Quinby size of frame might afford relief. But whatever frame or hive I adopted I would make it a rule to see that the bees never found it necessary to crowd in on the brood-chamber. If we were using eight-frame hives I would make the brood-chambers of two stories each, with some brood in each story; and I would run the hives three and four stories high, making sure the bees always had empty combs or foundation. I should judge from what you write you allow the bees to crowd the brood-nest. If you run for comb honey it is not always possible to avoid such crowding; but when you run for extracted the matter can be handled in the manner I have explained.—ED.]

BLEACHING COMB HONEY WITH SULPHUR; AN OPEN LETTER TO J. E. CRANE.

I see in GLEANINGS of June 15 an article from J. E. Crane, giving his experience in bleaching honey, and the difficulties he found in using sulphur. He says the writers of the articles on bleaching honey, which appeared in GLEANINGS two years ago, recommended the use of sulphur fumes cold—that is, to be burned outside, and conducted through a pipe. As I wrote the first article that appeared in GLEANINGS on bleaching honey I wish to give a statement of the way I then recommended and still practice in sulphuring honey. I use a box resembling a watering-trough, bottom side up. Holes are bored, over which I place a tier of seven or eight supers of honey. I place a teacupful of sulphur in a metal dish, and touch a lighted match to the sulphur, and place it directly under the supers on the box. In two or three hours the sulphur will have burned, the fumes will have gone up through the supers, and escaped through between the supers and under the

cover. I do not find any discoloration of the combs, and have no trouble in bleaching the honey. However, my success may be owing, to some extent, to our dry climate. I cover the top and sides of my bleaching-house with cloth, as I can not get too much sunlight. I find here that honey is safe from the heat until it gets above 90 degrees.

We shall have little honey here.

Pala, Cal., July 2. A. E. WHITE.

HOW TO CIRCUMVENT A COLONY OF BAD ROBBERS.

Please tell me what I shall do with a colony that is robbing the other hives. The robber hive is heavy with honey, and is a strong colony. It robbed me of four hives. On the 25th of May it tried to rob the fifth, and I raised the hive off from the bottom-board. That did not help, so I opened the top and that did no good. It was still robbing away, so the best thing I knew was to take the hive that was being robbed into the cellar. This colony I examined first, and the queen is all right. She is a year old.

H. B. STUMPE.

Baileyville, Ill., May 28.

[My advice would be for you to swap places with the robbed colony and the one that is doing the robbing. Then see what will happen. We tried that some years ago in a case almost identically the same as yours, and the effect on the robbers was fairly magical—at least for the time being.—Ed.]

OLD COFFEE-SACKS FOR SMOKER FUEL; A NEW USE FOR THE GERMAN WAX-PRESS.

I find old coffee-sacks in pieces just big enough to fill a smoker the very best material I have tried in 30 years in the use of smokers. I find my German wax-press par excellence in cooking beans and corn in cans to preserve for future use, and am satisfied it will be the very thing for canning tomatoes and other fruit. It holds 24 quart tin cans at one time.

J. B. RAPP.

Owensville, O., July 18.

[Some one has before suggested the value of old coffee-sacks for smoker fuel. There is nothing better for good strong pungent smoke, unless it is propolized cloths or quilts that have outlived or outworn their usefulness. But your idea of using the German wax-press for cooking beans and corn in cans is unique. I never thought of it before. Such a machine would be very useful in most households. I will have my wife try it.—Ed.]

A REPORT FROM DR. J. L. GANDY.

Rain continues, and honey prospects unchanged. This means a poor crop in Nebraska. I also have reports from Colorado, saying it was an off year there, but did not give the reason. Were it not for catnip and sweet clover I should now have to feed.

J. L. GANDY.

Humboldt, Neb., July 18.



And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul.—GEN. 2: 7.

The text above has just attracted my attention because of the part of the sentence that reads, "and breathed into his nostrils the breath of life." God gave life, and God is now giving life to humanity with every breath. We each and all depend on God for the next breath of air we take. After one has had his breath cut off so that it seems doubtful if he shall draw another one, he can then realize as he never did before what a gift is the air we breathe, and being permitted to breathe it.

We gather from the text that man was not yet a "living soul" until God himself breathed into his nostrils the breath of life. Dear reader, I am afraid there are many of us who can hardly be called "living souls," just *because* we are not getting this breath of life in the fullness God intended we should have it; and with this preface I want to talk about purer air or better air than most of us have every day of our lives.

T. B. Terry, in his recent health talks in the *Practical Farmer*, has had much to say about pure air. He has discovered, like myself, that it is a pretty hard matter to ventilate any room so it will be, in point of ventilation, equal to being right outdoors. He comes pretty near it, however, by having his study a good-sized room, with plenty of windows, and then taking the windows clear out, both upper and lower sash, and putting a frame covered with wire screen in place of the sash. Mr. T. has passed through some experience with failing health, like myself, that has, perhaps, made him more sensitive to the effects of bad air than people usually are. I have sometimes thought we might almost thank God for these struggles against disease when they lead us to study his laws, and drive us to him in prayer for wisdom and understanding in such matters. Mr. T. tried taking his writing material out under the shade of the trees in the yard; but insects bothered him so that he found it advisable to make his room in the house as near like outdoors as possible. It will repay any one interested in the matter to read all he has to say about the way he has accomplished it, or come very near it.

I have told you that my life here in the woods is mostly outdoors, and that our cabin is like Terry's study and sleeping-rooms—almost the same as outdoors. Our floor is still so that we can have the air come right up through it, when desired, and Terry has had his home made over, to some extent, so he can have a draft from the lower rooms clear up to the attic. I am still having days, or parts of days, when my strength (or something) gives out, and the remedy is

right along this line of pure air, and *more of it*. Mrs. Root (like Mrs. Terry) is right with me in the matter. It isn't rest we need, for, in fact, it is often exercise that is wanted; but with either rest or exercise, pure air is always wanted, and wanted in abundance. Our cabin is on a hill, or, rather, in a notch between two hills, and I at first claimed it commanded all the breeze that could ever be needed. Mrs. Root did not agree. At her request a high point just back of the cottage was cleared off except a few shade trees, and under these small maples a hammock was hung. This point commands a beautiful view of Grand Traverse Bay (Lake Michigan beyond), and during the middle of every hot summer day there is almost sure to be a breeze from the great northern lakes. There have been only a very few days this summer when I could take my nap there, without blanket or overcoat, or both of them.

Well, this point is our "Sanitarium." When I have my "used-up" spells the hammock *always* cures. A sleep is better; but lying still twenty or thirty minutes, with my face toward the breeze, often does almost as well. The air of this locality is, no doubt, equal to almost any in the world;* but the summit of the *hill* is a wonderful factor. Mrs. Root insists that our permanent dwelling shall be up there when we build one. I urge it will be much labor to go up and down with every thing, and that the "breeze" in winter and early spring will be called by another name; but she declares, every time, there is where *she* wants to live.

My friend, if there is a hill or even an elevation on your premises, thank God for it and try Mrs. Root's "tonic." Insanity is on the increase, the doctors tell us, and one form of it is becoming alarming. They call it "narco" insanity. It is caused by the craze for patent medicines; and these medicines sell because they contain *narcotics*. Just contrast the idea—taking drugs (at a dollar a bottle) when pure air costs nothing, and is a *thousand* times better every way!

If you haven't an elevation of land on your premises, fix a summer-house on the roof of your home, or a place to swing a hammock in hot weather. Come to think of it, this would be only going back to Bible times—going up on the roof to escape the heat and to get a breeze of pure air. In many locations it will pay, I am sure, to go *away up*. The makers of windmills, in their circulars, are very emphatic about the importance of having the mill clear above surroundings. Push it several feet above trees and every thing else. Well,

what is good for windmills is good for people. Get away from the impure lower world, up into God's pure and moving breezes.

Terry tells us how he has been troubled in traveling to get the windows open wide in his sleeping-rooms in hotels. Why, I have had them try to give me a bed in rooms without any window at all; but I never accepted such a room except once. I told you about being so sick in Florida I feared I should die; well, it was the night after I was obliged to sleep in a small room with three others who wouldn't have a window open. As a compromise they agreed to let me open the one door, and this let in air from the room below where a crowd were smoking, swearing, and playing cards, nearly all night. Contrast this with our hammock under the little maple-trees on the hill.

But I want to emphasize a point that I can not remember even Terry has made; and it is, to move your bed away from the wall, wherever you are. Give the bad air that goes out of your nostrils every facility to get so far away there is little chance of any part of it being taken back again into the lungs. Most of us know the result of being in a crowded audience with the windows and doors closed. For years it has been very hard for me to endure this. It gives me the nightmare in broad daylight. This has been talked about, so I won't take it up; but we who are getting old or feeble, or both, should study to avoid breathing the same air over. One great reason why riding in a buggy (or riding a wheel, if you choose) is so health-giving is, I think, because the bad air is gone "to the winds" the instant it leaves our bodies. The wonderful "second wind," so much has been said about in riding a wheel, is, in my opinion, caused (at least largely) by taking such unusual quantities of fresh pure air into the lungs. It makes me feel like a "living soul," as in our text, just to think of it. It is God's breath that gives this wonderful thrill of new life, strength, and vigor.

Now let us go back to the bedroom. Get all the windows and doors open. Never mind burglars. They are nothing to be compared to consumption and kindred diseases. When I made a flying trip to Ohio the 4th of July, Mrs. Root slept alone in our cabin in the woods, with the *door wide open*. It was about the warmest night of the season, and this is a healthy locality in *morals* as well as in good air. As yet there are no tramps in this region, and such terrible crimes as are chronicled in Ohio are unknown here. But let us go back to that bed in the average bedroom.

Get all the doors and windows open wide (of course, I am talking about, say, July and August weather). Get the head of the bed near the window where the air is coming in, then arrange your pillow so you can lie in such a manner as to send the air from your lungs over the side of the bed down to

*Mrs. Root had a pretty piece of plated ware she said she should discard because it was so much work to keep it bright. No matter how well it was scoured, in a few days dark spots came on it. This was in Ohio. Last spring she brought it up here, and it has kept bright and clean all summer long. Here in the woods there are no locomotives or coal smoke from any source to load the air with sulphurous fumes, and, as a consequence, silver keeps bright and untarnished.

the floor. Do this in order that you may not draw back any of the air you have just expelled. I learned this almost from necessity. Thousands of times during my busy life I have found myself confronted with important work that had to be done by a certain time, and my strength exhausted. One of my brief naps was almost as much a necessity as to breathe. How could I get to sleep quickest? By getting a breeze right in my face, and lying in such a position as I have described, so the bad air could drop out of the way and let the pure air in. In growing peaches and other crops we have had to study "air drainage." By paying proper attention to the matter of air drainage we avoid frost. If your peach-trees or other crops are in a hollow where the air settles stagnant, as it were, the frost will kill every thing. Well, people often sleep in a stagnant pool of bad air. Their pillows and feather beds get in such shape the air forms a pool around the sleeper; and the air that goes out of the lungs comes right back in again, or at least a large part of it. Some big stout men may stand this, but I can not. Even when lying in the hammock on a hot day, in order to get to sleep quick I put my face over the side, so there is absolutely no obstruction to the air going out. I hardly need to say one must clothe himself so as to be comfortable with all this "draught" of air. Consumptives are now being cured by keeping them outdoors all winter long. There is one such institution in bleak New England, and one in Colorado. Lots of woollens, and a big campfire *outdoors*, keep the patient warm.

Yesterday the potato-bugs were getting bad, and there was no one besides myself to use the sprayer. I had nearly finished the field when I began to "play out." I thought I would have to go to the hammock for a nap before I could finish; but just then a breeze came up from across the lakes. I opened my mouth wide and "pulled in" great breaths of it, filling my lungs to their fullest extent, and pretty soon I had "second wind" without riding the wheel, and finished my task easily. Lots of good air furnished oxygen for the blood; and instead of a lack of power I had a surplus. It is like fuel to the locomotive when on an up grade.

The great Father, who, in his infinite wisdom and love formed us of the dust of the ground, and breathed into us the breath of life, gave us also of his Holy Spirit that we might have a spiritual as well as physical life, and he will surely guide us in both lines if we look to him. "Shall not the Judge of all the earth do right?"



GETTING "ACQUAINTED" WITH TOOLS AND GETTING ACQUAINTED WITH BOYS.

Seest thou a man diligent in his business? he shall stand before kings; he shall not stand before mean men.—PROV. 22:29

I told you about getting acquainted with my wheelbarrow. I had handled wheelbarrows more or less ever since I was big enough to make a boy's wheelbarrow, and yet I did not know, till I was 62 years old, how to handle a heavy load on a wheelbarrow. I may have known how pretty well *theoretically*, but I had no *practical* experience in making a wheelbarrow take loads that generally require a horse; and what pleased me most of all was to find I had the muscle and skill to make it do this work. A man worked for me a few days ago who had wonderful skill in handling logs by hand, without any horse. He explained that he acquired that skill by being obliged once, in an emergency, to clear up a piece of woods when no horse was available; and he said this skill had been of much value to him ever since. Well, it has in like manner done us good to work here in the woods, without a horse.

One of the boys in our employ has annoyed us somewhat because he is so curious in wanting to know how every thing is done, and all about every thing that is going on. When the big team was tugging hard at a big stump it was difficult to get him to stick to his job of getting the brush out of the way, because he wanted to see all about the way the chain was adjusted, etc. I really felt obliged to say, "John, you keep right on with your work, and never mind what the men and team are doing. The brush you are working at is in our way every little while."

John seemed for a time to feel hurt at my reproof; but in a little while, when they were doing something different, he stopped his work again to look. Finally John and I didn't get on very well together. As I look back I think now it was somewhat my fault. It was like the wheelbarrow. I didn't know what it was good for at first, and I didn't know what John was good for, because I was not sufficiently acquainted with him.

Last winter, while in Ohio, I received a circular of the "Cyclone grub-puller," and finally sent for a machine costing seven or eight dollars. I had it shipped up here to save the time of a big team in clearing up wild land. When my neighbor Hilbert saw it he laughed at me and said I had wasted my money. I tried to work it, but it tired me out, and I did not accomplish any thing. I tried to have one of our stout men use it. He pronounced it "no good"—said he had seen similar things before, and tried them, but they were "no account." I felt sore

Mr. Root:—Please say to your readers that if any of them have any questions they would like to have answered at the Denver convention, and will send them to me, I will see that they are presented.

A. B. MASON, Sec.

Toledo, O.

about my foolish investment, and actually let it lie out in the bushes the greater part of one summer, and toward fall it was pushed back under the house, out of sight, and I would have sold it for a very small part of the original cost. Well, this boy got his eyes on it one day, and began to ask questions about it. I told him it was "no good," and that we could not afford to waste time with it. If I remember, he finally asked if he might try it, on his own time. Of course, I could not object. Do you know what happened? He looked it over, got the "hang" of the tool, and then pulled up stumps of small trees that had been cut off for the big team, and did it at a pretty good jog. The tool is a fine thing; but three grown men (myself one of them) had not the genius and patience to get "acquainted" with it. A boy of sixteen, and a slender one at that, made it work right away, and I had been scolding that same boy because he was so "curious" about all kinds of work and machinery.

When we were ready to plant our early potatoes, John and a companion of about his own age planted them so rapidly with the little hand planter I have been telling you about I felt sure they couldn't be doing the work well enough. It seemed to me they were just walking through the field "rattlety bang," and wanted a good nice job of my planting. They assured me they were all right, and that there was a piece in every place that would come up. I finally let them go on, but felt a good deal worried until my potatoes were all up in good shape. They now cover the ground right before the window where I write, and their white blossoms make the hillside almost like a bed of roses, only they are *potato* blossoms instead of roses.

We got behind in planting our late potatoes, and I borrowed a planter and essayed to help the boys. You know how fully I have published the directions for using these cheap hand planters. I supposed I could, of course, very soon go right along with it as the boys did. Well, friends, I soon found not only that I was not "acquainted" with the tool, but it seemed as if I *couldn't get* acquainted with the little "animal." The boys would plant *four* hills with my one. They stopped and showed me how; but I would get the "wrong foot forward;" then I dropped my piece of potato, or it stuck in the planter,* and I tired myself out and did almost nothing. They had used the wonderful little tool almost from childhood up, and would swing it about either right or left handed, and make it "click" at every hill, until I couldn't help thinking of a bright pretty girl with her typewriting machine. Yes, it is much like learning to use a typewriter, in becoming expert with modern farm machinery. I took a rest, and then "tackled" the plant-

er again, and learned to plant tolerably fast, but couldn't keep up with the boys. To succeed you must train both feet, both hands, and both *eyes*, to do their work *automatically*, or, perhaps I should say, to do the work without any exercise of the will.

When you see people about here walk over acre after acre, and see the potatoes come up looking as well as or perhaps better than if planted by an expensive machine, with a perhaps more expensive team of horses, you will not wonder that it takes a big factory at Traverse City to supply the world with these "stick planters" as they have been called.

This morning (July 11) our potatoes needed cultivating badly; but every horse in the neighborhood was busy, and could not be spared. Finally I got one that the owner thought *might* cultivate some if one of us led her and the other held the cultivator. I led her over nearly an acre of the worst hilly ground, and studied her disposition. Finally I took off the lines and hung them on a tree; and while I write she and John are doing fine work. Nobody is "yanking" the lines, for there are none. Nobody is scolding her, for she minds "gee" and "haw" beautifully, and she is happy and contented, for she can swing her head and look about just as freely as she does in the pasture. Of course, John deserves a good deal of the credit. By the way, he just gave me a point on potato-growing I never knew before. He remarked, as we took another row:

"There is your Freeman and here is your Lee's Favorite."

"Why, how do you know? Can you see a difference in the foliage?"

"No; but here is your one row of Triumphs between the two kinds."

"But how do you know that row is Triumphs? The leaves are not different, are they?"

"No; but the stems close to the ground are red. See?"

All at once I noticed the blood-red stems or stalk of the potato, and it was plainly visible as far as you could see in that row. I thought it quite an invention of mine, putting a row of red potatoes between all the different varieties; but it did not occur to me one could find the "red row" without digging out a potato or two. Now I shall be able to distinguish the different varieties any time, when passing along, by watching for the red stems.

I am just getting "acquainted" with John. He is getting acquainted with red potatoes, and getting ahead of me, even if I am a potato-specialist. We have both been getting acquainted with Maude (the horse whose owner gave her a bad reputation); and the result is, we are all pushing the work and having a pleasant time all round. Dear reader, are you in like manner getting *acquainted* with your tools, your horse, your hired men or boys, and your neighbors all around you?

* The boys showed me that, if the potatoes were cut and spread out an hour or two before planting they would not hinder by the wet surface sticking to the smooth bright steel of the planter.

HILBERT'S STRAWBERRIES.

A year ago last spring I told you how Mr. Hilbert and his children planted a piece of four acres to strawberries. Potatoes were on the ground the year before. It was made very fine, and smoothed off with a float, and then marked with the chain marker 2x4 feet. The weather was not particularly favorable, but the plants made a pretty full stand and looked fairly well during the summer. They were planted just about the first of May, and the first picking began the last of June, a year later, and continued nearly four weeks. They were shipped to Chicago; and as the crop seemed a partial failure further south, and the berries were remarkably large and firm, the first carload brought 15 cts. Mr. H. said he was never more surprised in his life when he got the returns, although he had worked hard to send a choice lot of berries. The last carload got in just as the big strike of the teamsters and produce-handlers started. This cost him about half of the value of this last shipment. Now hold your breath. His checks added up, that he received for strawberries, amounted to over *seventeen hundred dollars*.

A part of these berries came from his old patch, for he makes a new plantation every year; but this four acres *alone* gave over a *thousand dollars*. Fitting the land was done with ordinary farm tools, and I should say cost but little more than to fit a piece *well* for either corn or potatoes. The cultivation was almost all done with horsepower—very little hoeing or weeding. It took from 20 to 30 pickers nearly a month to gather them. Two girls together received \$45 for picking. My young friend Alice made over \$30, and picked 136 quarts in one day. As the 4th of July came in just the height of the season, and was also pretty close to Sunday, it threatened to make a loss; but all who worked on the 4th were given double pay, and this kept them at work, a great part of them. This splendid result is due somewhat to this favorable locality and a good deal to the very favorable spring, with its cool weather and abundant rains. Just as the berries were ready to color up we had warmer weather and enough sunshine. A year ago the crop was nearly ruined by hot dry weather at the critical time.

Now, dear reader, as I have said so much about Hilbert's successful moves perhaps I better tell you a little on the other side. Over ten years ago, or perhaps more, he got the plum-fever and planted an orchard of 100 wild-geese plums. If I am correct he has never yet had any plums worth mentioning from this whole orchard. I remember well what a lot of talk there was about this plum when it first came out—that it was "curculio proof," etc., and I should like to inquire if it has proved "no good" in other localities. The trees are now fine-looking and thrifty, but I could find a plum only here and there when I went through the orchard a few days ago.

Convention Notices.

PROGRAM OF THE THIRTY-THIRD ANNUAL CONVENTION OF THE NATIONAL BEE-KEEPERS' ASSOCIATION, TO BE HELD IN DENVER, COLORADO, SEPTEMBER 3, 4, 5, 1902.

FIRST DAY, WEDNESDAY, EVENING SESSION.

- 7.30.—Invocation; music; address of welcome by President Harris, Mayor Wright, and Governor Orman; responses by President Hutchinson, Secretary Mason, and Director Miller.
8.30.—"Bee-keeping from the Atlantic to the Pacific, as Seen Through the Camera and Stereopticon," by E. R. Root, Medina, Ohio.

SECOND DAY, THURSDAY, MORNING SESSION.

- 9.00.—Music; president's address, "The Future of Bee-keeping;" discussion.
10.00.—"Which is the Most Hopeful Field for the National Association?" by Dr. C. C. Miller, Marenco, Ill.; response by Rev. E. T. Abbott, St. Joseph, Missouri; discussion.
11.00.—Question-box.

AFTERNOON SESSION.

- 1.30.—Music; "Reporting of the Honey Crop—When and How it Should be Done," by C. A. Hatch, Richland Center, Wisconsin; response by Frank Rauchfuss, Denver, Colorado; discussion.
2.30.—"Bee-keeping Lessons that May be Learned from the World Locality," by H. C. Morehouse, Boulder, Colorado; response by E. R. Root, Medina, Ohio; discussion.
3.30.—Question-box.

EVENING SESSION.

- 7.30.—Music; "The Outside and Inside of a Honey-bee," illustrated by the stereopticon, by Prof. C. P. Gillette, Ft. Collins, Colorado.

THIRD DAY, FRIDAY, MORNING SESSION.

- 9.00.—Music; "Selling Extracted Honey at Wholesale—How to Get the Best Prices," by J. F. McIntyre, Sespe, California; response by T. Lytle, Manzanola, Colorado; discussion.
10.00.—"Putting up Extracted Honey for the Retail Trade," by R. C. Aikin, Loveland, Colorado; response by G. W. York, Chicago, Ills.; discussion.
11.00.—Question box.

AFTERNOON SESSION.

- 1.30.—Music; "Managing Out-apiaries for Comb Honey," by W. L. Porter, Denver, Colorado; response by M. A. Gill, Longmont, Colorado; discussion.
2.30.—Question-box.
3.30.—Trolley-ride, "Seeing Denver."

EVENING SESSION.

- 9.00.—Banquet. A. B. MASON, Sec.

PROGRAM OF TWENTY-THIRD ANNUAL CONVENTION OF COLORADO STATE BEE KEEPERS' ASSOCIATION IN JOINT MEETING WITH NATIONAL BEE-KEEPERS' ASSOCIATION.

WEDNESDAY, SEPT. 3.—FORENOON SESSION.

- 10.00.—Invocation; reading minutes; president's address. After the president's address ten minutes will be given for members to offer suggestions or give notice of any business or discussion that they wish to bring before the convention. Come prepared.
11.00.—A four-cornered discussion by four prominent apiarists, speakers limited to ten minutes each: 1st subject, "Association Work, and Influence—If Good or Bad, and Why;" 2d, "Comb Honey—Best Hive and System, and Why;" 3d, "Extracted-Honey Production—Best Hive and System, and Why;" 4th, "The Most Pressing Need of Our Pursuit." General debate on the foregoing subjects; speakers limited to three minutes except by consent of the convention. Appointment of temporary committees; dinner.

AFTERNOON SESSION.

- 1.00.—Question-box.
1.30.—Unfinished business; reports of committees; new business.
2.30.—Election of officers.
3.00.—Paper, "The Bee in Literature," by F. L. Thompson; miscellaneous business.



CARLOAD SHIPMENTS.

Up to the same date last year we had shipped 24 less carloads than we have this year up to August first. Orders are holding out much longer this year than last; and, judging from reports, the prospects are good for next year.

SWEET-CLOVER SEED WANTED.

We should like to hear from any one having sweet-clover seed for sale, with sample of the seed you have to offer, and the amount and price per pound. If you have no seed from last year, the time is at hand for gathering new seed, and many might gather it if they could find an outlet. We are also in the market for catnip seed. Send sample, with price and quantity you have to offer.

ADVANCED PRICES ON BEE-KEEPERS' SUPPLIES.

We are preparing new bees on hives, frames, sections, fences, section-holders, separators, shipping-cases, etc. These we hope to have ready to publish in our next issue, or at least by Sept. 1. Both lumber and labor have advanced to such an extent that we can not continue selling supplies at the old price except at a loss. Old prices are, therefore, withdrawn; and while we may not change the prices on current orders till the new prices are published, we reserve the right to do so. We are making still further advances in hive construction. All hives as now made have the edges jointed smooth. Half the bodies and supers are nailed ready for the inside fixtures when you receive them. With our new nailing machine we are able to do this at slight expense and in the best manner possible.

HONEY-PACKAGES.

Of these seal-cover pails we have in stock several hundred of various sizes which we offer while they last, at the following prices:

| | | |
|---|-------|----------|
| No. 1, holding $1\frac{1}{2}$ lbs. honey, at \$ | 6 50 | per 100. |
| " 2, " 3 " " | 7 50 | " " |
| " 3, " $4\frac{1}{2}$ " " | 8 50 | " " |
| " 5, " $7\frac{1}{2}$ " " | 10 50 | " " |

Of square cans we have a large stock of various sizes, which we offer, to reduce stock, at the following special prices:

| | | |
|--|-------|----------|
| $\frac{1}{2}$ -gallon square or oblong at \$ | 6 50 | per 100. |
| $\frac{1}{2}$ " " " " | 7 50 | " " |
| 1 " " " " | 10 00 | " " |

Put up in boxes of 24 $\frac{1}{4}$ -gal., or 12 $\frac{1}{2}$ -gal., or 10 1-gal., add 80 cents per box in lots of 10 boxes or more, making the price \$1.86, \$1.20, and \$1.30 per box with cans. We can also supply promptly at best prices the 5-gallon cans, 1 or 2 in a case.

SECOND-HAND CANS.

We have on hand quite a few good second-hand 60-lb. cans, two in a case. These are bright cans, having been used only once, in most cases, and practically as good as new. Price \$5.00 for ten boxes; 25-box lots at 45c a box while they last. New cans at 25 cts. per box more.

MASON JARS.

We have a good stock of these jars, and another carload expected soon, so that we are prepared to supply your needs promptly at the following prices:

| |
|--|
| Pint,.....1 doz. .55; 6 doz., \$3 15; 12 doz., \$6 25. |
| Quart,....." .58; " 3 30; " 6 50. |
| $\frac{1}{2}$ -gallon.. " .75; " 4 35; " 8 50. |

NO. 25 JARS.

Price 60c per 10; \$5.75 per crate; \$1.20 per box of two dozen; six boxes, \$6.75.

100 Pounds per Colony

is the record of our bees thus far this season. We are now prepared to furnish queens from our choice bees at the following prices: Untested, 75c each; six, \$4; tested, \$1; six, \$5.

Leininger Bros., Fort Jennings, Ohio.

KNIGHTS OF PYTHIAS BIENNIAL MEETING

For this gathering in San Francisco in August next, excursion tickets will be sold via the Chicago, Milwaukee & St. Paul Rv. from Chicago to San Francisco or Los Angeles for \$50 for the round trip with final return limit September 30.

The Chicago, Milwaukee & St. Paul railway is the short line between Chicago and Omaha. Two through trains daily in each direction with the best sleeping-car and dining-car service, and all regular travelers know and appreciate the merits of the Chicago, Milwaukee & St. Paul Railway short line between the East and the West.

Time tables, maps, and information furnished on application to F. A. MILLER, General Passenger Agent, Chicago.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell in December 160 acres of improved land for \$500, and 200 hives of yellow bees, and extracting tools. Hive factory very cheap for cash. Come for health where there is but little rain and no snow. Land is rich, and crops grow well. This State has all kinds of climate and soil.

S. W. CONRAD, Poplar, Tulare Co., Cal.

WANTED.—To sell 225 swarms of Italian bees. Don't write unless you mean business.

ELIAS FOX, Hillsboro, Wis.

WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card.

N. A. KNAPP, Rochester, Ohio.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & Co., Chicago, Ill.

WANTED.—To exchange 100 extracting-combs—L. size, 50 hives, and 15 colonies of bees for amber or buckwheat comb honey.

W. V. BINKERD,
Box 51, West Monterey, Pa.

WANTED.—A buyer for my 120 colonies of fine Italian bees and fixtures, and if bought soon honey goes with it.

L. WERNER, Edwardsville, Ill.

WANTED.—One dollar for 15 W. P. Rock eggs; \$3.00 for 50, or \$5.00 for 100; from 93 to 95 scoring birds; cockerels and pullets, \$1.00 each; 75 cts. for one Golden Italian queen, or \$8.00 per dozen—after August 1st, 50c each or \$5.00 per dozen.

GEO. W. COOK, Spring Hill, Kansas.

WANTED.—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid.

O. H. HYATT, Shenandoah, Ia.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz, and $\frac{1}{4}\times\frac{1}{4}$ sections; made for Pan-American. For prices, etc., address ORELL H. HERSHISER,

301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange American Eclipse evaporator—contains 78 reversible trays, 7 square feet each—for bees or offers, or will sell cheap for cash. Also want location for bee-yard in the buckwheat district, either West Virginia, Pennsylvania, or Maryland.

REINHARD STEHLE, Marietta, Ohio.

WANTED.—One or more copies of Vol. II. Cheshire's Bees and Bee-keeping. Let us know in what condition your book is, and price wanted.

THE A. I. ROOT Co., Medina, Ohio.

WANTED.—To exchange warranted and tested Italian queens for good typewriter and foot-power saw.

JOHN M. DAVIS, Spring Hill, Tenn.

WANTED.—To exchange motor-cycles, gasoline-engines— $1\frac{1}{2}$ to $4\frac{1}{2}$ h. p. Wanted—machinery of all kinds.

ROBERT B. GEDYE, LaSalle, Ill.

California has had a light honey crop this year, but here is an encouraging letter from a resident of that State, in regard to the doings of a colony having a queen of the Superior Stock.

DOS MESAS, CALIF., June 26, 1902.

W. Z. HUTCHINSON, Flint, Mich.

Dear Sir:—I enclose you the photo. of a hive taken at 6:00 A. M., being the only time of the day that the sun shone directly upon it. The colony in this hive is the development of a three-frame nucleus, in which was placed the queen that you sent me last summer. You may remember that she was sent quite late in the season, as California seasons go. However, she raised enough bees so that they filled ten frames full of honey for winter. On account of the good showing of this queen last fall, I used her to breed from this season, taking larvae from the combs, per the Alley method, every five days. In spite of the loss in comb and bees, and the interruption to the labors of the hive, I have taken off 66 well-finished sections. Please bear in mind that this is a poor year, and most of my 145 big hives have given me nothing. These bees are the nicest bees to handle of any I have ever seen. While I do not suppose that you intended to send me a selected breeder, I am satisfied that this queen will compare favorably with any queen owned by anybody. If this will be of any aid to you in advertising Superior Stock, you are welcome to print it.

Yours sincerely,

H. N. CROSS, M. D.

My friend, for \$1.50 I can send you a queen reared from the same strain as the queen possessed by Mr. Cross. She will come from the same breeder, and be reared in exactly the same manner. I will guarantee safe arrival, safe introduction, purity of mating, and entire satisfaction to the extent that the queen may be returned any time within two years and the money will be refunded, together with 50 cts. extra to pay for trouble.

Special Offer.—For \$2.00 I will send one queen, and the Bee-Keepers' Review for one year.

W. Z. HUTCHINSON, Flint, Mich.



\$1---for The Pacific Bee Journal and Gleanings---\$1

Here in California

we need only one good year to make a stake. 200 colonies in the fall can be bought for \$700, and often return \$1500 in honey with two months' work. Off seasons we have, but where else in this wide world will an apiary produce 400 lbs. honey to the colony?

“A Term of Good Years Must Come Again.”

Pacific Bee Journal with Gleanings,
new or renewal, \$1 a year. Address

237 East Fourth St., = Los Angeles, Calif.



Queens!

Buy them of H. G. Quirin, the largest queen-breeder in the North. The A. I. Root Co. tells us our stock is extra fine. Editor York, of the *American Bee Journal*, says he has good reports from our stock from time to time, while J. L. Gandy, of Humboldt, Neb., has secured over 400 lbs. of honey (mostly comb) from single colonies containing our queens. We have files of testimonials similar to the above.

Our breeders originated from the highest-priced long-tongued red-clover queens in the United States.

Fine queens, promptness, and square dealing have built up our present business, which was established in 1888.

Price of Queens After July First.

| | 1 | 6 | 12 |
|---|-------|--------|---------|
| Selected..... | \$ 75 | \$4 00 | \$ 7 00 |
| Tested..... | 1 00 | 5 00 | 9 00 |
| Selected Tested..... | 1 50 | 8 00 | |
| Extra Selected Tested—the best
that money can buy..... | 3 00 | | |

We guarantee safe arrival to any State, continental island, or any European country. Can fill all orders promptly, as we expect to keep three to five hundred queens on hand ahead of orders. Special price on 50 or 100. Circular free. Send all orders to

Quirin the Queen-breeder,
Post and Money-order Office, Parkertown, Ohio.

MICHIGAN

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**C. B. Lewis Co.'s
Bee-keepers' Supplies,
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We have the largest stock of supplies in the State. Can ship on one day's notice. Send for our 48-page illustrated catalog and give us a trial order.

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The *gentlest* bees in the world; are very hardy, prolific, and the *best* of workers. We are the largest breeders of this race of bees in America. Choice breeding and imported queens always on hand. Untested, 65c; tested, \$1.25; select tested, \$2.25; best imported, \$4.00. Send for descriptive list.

F. A. Lockhart & Co., Caldwell, N. Y.
WARREN COUNTY.

Seasonable Offerings.



The Fred W. Muth Co.

Front & Walnut Streets

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Muth's Pound Square Flint-glass Honey-jars

with patent air tight glass stoppers, at \$5.50 per gross. Far superior to old style with corks. Try a gross. Just the thing for home market.

Crates of Two 60-pound Cans.

Been used once, but in good condition. In lots of five crates, 40c each; ten or more, 35c. This lot is limited; order at once.

Queens; the Best Money Can Buy.

Buckeye Strain three-banded are the genuine red clover workers. *Muth's strain of golden Italians* can not be surpassed. Either of above 75c each; six for \$4.00. Select tested, \$1.50 each. A trial will convince you. Send for our catalog of bee supplies.

QUEENS!

BY RETURN MAIL.

We are now breeding from three distinct strains; viz., Imported or leather color, Root's long-tongued or red-clover strain, and our old strain of white banded yellow Italians, or albinos.

PRICES:

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| Tested, each.. | \$1.25 |
| Select tested, each..... | 1.50 |
| Warranted purely mated, each.... | .75 |
| Same, per half dozen..... | 4.00 |
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| Same, per half dozen..... | 3.50 |
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We have also a full line of bee-keepers' supplies including THE A. I. ROOT COMPANY'S GOODS. Send for our 32-page illustrated catalog.

W. W. Cary & Son,
Lyonsville, Mass.

The Best Stock.

I have had 18 years' experience in the production of honey, and during that time I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then, by crossing these different strains, and selecting the best, and breeding from them. I have secured a strain of stock that is the equal of any for honey-gathering. This year I am breeding from a daughter of Root's famous \$200 queen, and from the stock of J. P. Moore. Warranted queens, in any quantity, will be sold at 55 cts. each, and satisfaction will be guaranteed in every case, or money will be refunded.

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For the first time this season I have a few queens ahead of orders. These orders came from all customers who had tried a few queens - some of them dozens or hundreds—and liked them. A few from new ones. But as I was pushed with orders I advertised very moderately. Now I have a big lot of nuclei and queens, and can send queens *promptly* as follows: Warranted queens, 75c; six for \$4.00; one choice select warranted, \$1.00; six for \$5.00. Send for free folder.

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10 CENTS

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We want to send it on trial to every reader of *Gleanings* **Three Months for 10 cts.** This vigorous young monthly has just entered its second year on a **paying basis**, and has become the recognized mouthpiece of the beekeepers of the great Rocky Mountain alfalfa regions. Address

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Box 611, Boulder, Colorado.

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Root's Supplies

at Catalog Prices.

SEND FOR CATALOG.

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182 Friend St., 1st Flight.

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Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

A prominent queen-breeder writes: "I have reared and sold over 5000 queens in the past few years, and I am using your stock exclusively, as it is the best I can get." Another writes: "The queen mother I got of you is the best queen I ever saw." A prominent writer for the *Review* states the Laws queen is making a fine showing. Many nice letters indicative of the superiority of Laws' queens on file. Prices: Tested or untested, \$1.00 each; six for \$5.00. Discount on large lots. Write for circular.

W. H. Laws, Beeville, Texas

Bee-supplies Quick

Let us show you how quick we can fill your orders. Best of goods and the best place in country to ship from.

Get our Prices on Dovetailed Hives and Sections. Write to us if you have any Honey or Beeswax to sell.

C. M. SCOTT & CO., INDIANAPOLIS, INDIANA.
1004 East Washington Street.

Queens! Queens!

We have five different yards, 5 to 20 miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos are bred for business. You can send in your orders at following prices the rest of this year: Tested, \$1.50 each; \$8.00 for six; \$15.00 per doz. Untested, 75c each; \$4.25 for six, or \$8.00 per doz. Fine breeders, \$5.00 each. Safe arrival guaranteed. Write for free catalog. Tells how to raise queens and keep bees for profit. The Jennie Atchley Co., Beeville, Bee Co., Tex.

NONE BUT THE BEST QUEENS ARE GOOD ENOUGH FOR ANY ONE.

No bee-keeper wants to give hive room to inferior bees. The best queens fill their hives with brood. The best bees fill their supers with honey. Every bee-keeper knows this, but does not know that *our strain* of Italians are in the lead. Try them. You will not be disappointed. Choice tested queens, \$1.00 each. Untested, 75c; \$8.00 per doz. Send for price list.
J. W. K. SHAW & CO., Loreauville, La.

Imp't'd Queens Direct from Italy

Please send us your address on a postal card, and we will send you our price list of queens, written in English. Our motto: "Whatever ye would that men should do to you, do ye even so to them." Address Malan Brothers, Queen-breeders, "Apiario," Luserna, San Giovanni, Italy.

POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts. if you mention *Gleanings* (reg. price, 50 cts). Inland Poultry Journal, Indianapolis, Indiana.

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Bee-hives, Sections, Shipping-cases, and Everything Used by Bee-keepers.

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

Minnesota Bee-keepers' Supply Mfg. Co.,
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To make cows pay, use Sharples Cream Separators book "Business Dairying" & cat. 288 free. W. Chester, Pa.

Long Tongues Valuable South as well as North.

How Moore's strain of Italians roll in the honey down in Texas

Hutto, Texas, Nov. 19, 1902.

J. P. Moore.—Dear sir:—I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-handed Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend P. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my out-apiaries next spring with your queens.

Yours truly,

HENRY SCHMIDT.

The above is pretty strong evidence that red clover is not the only plant which requires long-tongue bees to secure the greatest quantity of nectar.

Daughters of my 23-10 breeder, the prize-winner, and other choice breeders: Untested, 75 cts. each; six, \$4.00; dozen, \$7.50. Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00. Safe arrival and satisfaction guaranteed. Circular free. I am filling all orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.
Pendleton County.

HONEY QUEENS FROM TEXAS.

I can furnish queens of 6 different races, all bred in their purity in separate yards from 6 to 25 miles apart. Untested queens, 75 cts to \$1.00 each. Tested queens of either race, \$1.50 to \$3.00 each. Breeders, \$3.50 to \$5 each. Bees by the pound, and 1, 2, and 3 frame nuclei a specialty. Prices cheap. Quoted on application. Price list free. Will Atchley, Box 79, Beeville, Bee Co., Tex.

Queens for Aug. and Sept., 60 cts.

Abbott L. Swinson, queen-specialist, will mail warranted American Albino Italians (best bees known) to introduce the stock, at 60 cts. each; \$6.00 per dozen. Everybody try them, and get the bee you need.

Swinson & Boardman, Box 358, Macon, Ga.

QUIRIN, THE QUEEN-BREEDER, of Parkertown, Ohio, has a fine lot of young red-clover queens on hand, which can be sent promptly by return mail. Western reports indicate that Quirin's bees are "busters." See his advt on page 162.

Wanted Immediately, Comb Honey in Danzenbaker Sections.

We have a market for large quantities of fancy comb honey in Danzenbaker sections, and shall be pleased to hear from parties who have any to offer. In writing, please state:

1. From what source gathered.
2. Color (white or amber), and grade (Fancy or No 1.)
3. In what size cases.
4. Price at which you will sell f. o. b. at your station or delivered at Medina (preferably the latter).

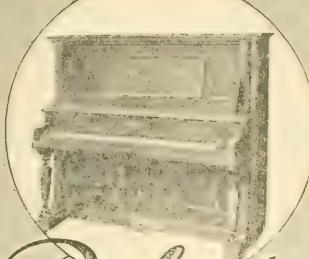
We can use, also, moderate quantities at once in Ideal (3½x5) and 4½x4½ sections; also extracted. Send sample of extracted, putting your name on the same, and giving particulars as to amount, source, size of package, and price. Extracted honey is preferred in 5-gallon square cans.

THE A. I. ROOT CO., Medina, Ohio

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

The Ideal Piano



Sackard

Don't anticipate the demand of those satisfied with nothing but the best and looking for a piano of the **Highest Artistic Creation** Are you considering the purchase of a piano? Our proposition will prove more entertaining than any you have had. *Catalog and full information free on application.*

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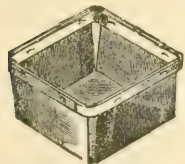
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Shipped on 3 months Trial

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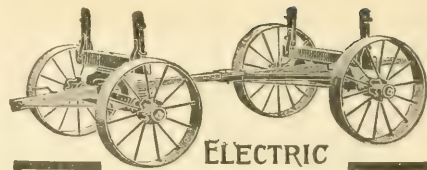
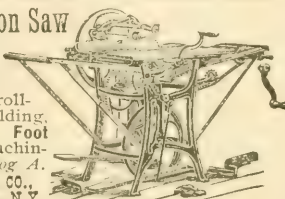
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Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

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Fruit & Ornamental, Shrubs, Roses, Bulbs and Plants.

Correspondence solicited. Valuable Catalogue free. 49th year. 44 greenhouses. 1000 acres.

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PAGE

THE STRONGEST

friends PAGE FENCE has, are the people have used it longest and tested its merits

Page Woven Wire Fence Co., Box S, Adrian, Michigan.

BETTER PRICES

can be secured for your honey, and you can save money by using cartons and shipping-cases purchased

of C. B. Howard, Romulus, New York.

The weight of the cartons more than pays for them. Order early so as to save delay.

200 TESTED RED CLOVER QUEENS

on hand, to go by return mail at \$1.00 each; untested, 75c each; \$6.00 per doz.; 50 to 100, special prices. We have colonies this year that gathered \$2.25 of clover honey. This beats two years ago. We breed from one of Root's red-clover queens, too. She's a hustler, and fine. Now is your time to get ready for next season. We guarantee all our queens to reach you P. O. in good condition, and please you. Money-order office, Gurnsey, Pa.

G. ROUTZAHN, Menallen, Pa.

Barns

Barns of plank save timber and cash. Neatest, cheapest, strongest, most desirable. 5000 in 12 States. Tested for 20 years. Indorsed by agricultural colleges and scientific men. Book for stamp.

Shawver Brothers, Bellefontaine, Ohio.

Notice! After July 1st I will sell fine Italians as follows: Untested, 50c; tested, \$1.00; breeders, \$2.00. My bees are hardy, gentle, and prolific and work well on red clover. I also have choice stock of Doolittle's, Root's red-clover, and other strains, and will do the best I can to please. Safe arrival guaranteed.

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FOR SALE.—100 Langstroth winter hives, supers, zinc honey-boards, bee-escapes, and feeders.

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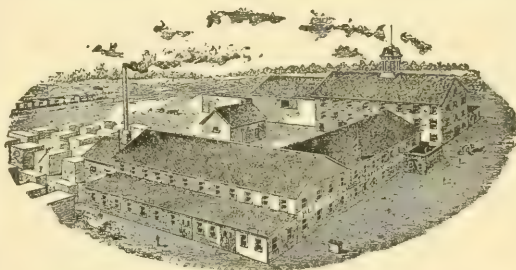
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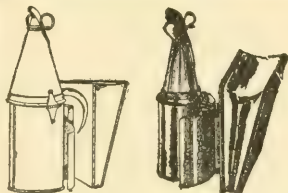
BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. *Write at once for a catalog.*

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Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Ia.
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,

HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop ink drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

SCHENECTADY.—Received the first consignment of new comb honey to-day. The quality will grade No. 1 clover, and we expect to sell it for 15c without any trouble. Have also a lot of extracted in pint jars on the way. The usual price for these is \$2.00 per dozen.

Aug. 2. 523 State St., Schenectady, N. Y.
CHAS. MCCULLOCH.

KANSAS CITY.—Receipts of comb honey increasing, with no change in price. We quote fancy white comb 14@15; No. 1, 13@14; amber, 12@13c. Extracted white, 6; amber, 5½. Beeswax, 22@25.

Aug. 2. 306 Grand Ave., Kansas City, Mo.
C. C. CLEMONS & Co.,

CINCINNATI.—Some small lots of new comb honey have been coming in, but as the weather is so warm there is very little demand. That sold in stores brought 15c for fancy. The market for extracted was more lively, bringing as follows: Amber, 5@5½; alfalfa water white, 6@6½; white clover, 7@7½. Beeswax, 30c cash.

Aug. 2. 2146 Central Ave., Cincinnati, Ohio.
C. H. W. WEBER.

MILWAUKEE.—The month has opened with a better demand for extracted honey, and some demand for comb; and new crop wanted. The stock of old comb of fancy quality is very small indeed, while the low and medium grades are neglected. We think any shipper who may have fancy new comb will realize better prices now than later, and extracted—either old or new—will sell. We now quote fancy 1-lb. sections, new crop, 15@16; old crop, 14@15; inferior qualities, entirely nominal. Extracted, in barrels, cans, pails, and kegs, white, 6½@7½; amber, 5@6. Beeswax, 28.

Aug. 4. 119 Buffalo St., Milwaukee, Wis.
A. V. BISHOP & Co.,

CHICAGO.—Some comb honey produced in 1902 is now on sale; fancy bringing 15; any thing off in appearance or quality selling at 13@14 for white; amber grades, 2 to 3c per lb. less. Extracted is selling at 6@7 for white; light amber, 5½@6; dark, 5@5½. There is a fair demand for all grades and kinds. Beeswax steady at 30c.

Aug. 11. 199 South Water St., Chicago, Ill.
R. A. BURNETT & Co.,

FOR SALE.—Several thousand pounds comb honey in Danzenbaker 4x5 sections. Shall commence filling orders in August. WM. MORRIS, Las Animas, Col.

FOR SALE.—Choice extracted buckwheat honey, put up in 160-lb. kegs, at 6 cts. per lb.
E. W. & F. C. ALEXANDER, Delanson, N. Y.

We can place a few cars of comb and extracted honey; will be glad to correspond with parties having some to offer. We also solicit local consignments
C. C. CLEMONS & Co., 306 Grand Ave., Kansas City, Mo.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.
SEAVEY & FLARSHHEIM,
1318-1324 Union Avenue, Kansas City, Mo.

WANTED.—Honey and beeswax. Mail sample, and state price delivered at here. C. H. W. WEBER,
2146, 2148 Central Ave., Cincinnati, Ohio.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Comb honey, white or amber, for cash or on commission, clover preferred. Reference—The A. I. Root Co. C. G. TURNER, Mechanic Falls, Me.

WANTED.—Offers of car lots of honey, especially comb honey. Cash paid on delivery at your warehouse or station.
THOS. C. STANLEY & SON,
Apiarists and Honey Buyers,
Manzanola, Col., or Fairfield, Ill.

FOR SALE.—Extracted honey, from alfalfa, at 7c per pound. Send for sample.
D. S. JENKINS, Las Animas, Col.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

Wanted Immediately, Comb Honey in Danzenbaker Sections.

We have a market for large quantities of fancy comb honey in Danzenbaker sections, and shall be pleased to hear from parties who have any to offer. In writing, please state:

1. From what source gathered.
2. Color (white or amber), and grade (Fancy or No. 1.)
3. In what size cases.
4. Price at which you will sell f. o. b. at your station, or delivered at Medina (preferably the latter).

We can use, also, moderate quantities at once in Ideal (3½x5) and 4½x4½ sections; also extracted. Send sample of extracted, putting your name on the same, and giving particulars as to amount, source, size of package, and price. Extracted honey is preferred in 5-gallon square cans.

THE A. I. ROOT CO., Medina, Ohio

BETTER PRICES

can be secured for your honey, and you can save money by using cartons and shipping-cases purchased

of C. B. Howard, Romulus, New York.

The weight of the cartons more than pays for them. Order early so as to save delay.

To make cows pay, use Sharples Cream Separators book "Business Dairying" & cat. 288 free. W. Chester, Pa.



A Standard-Bred QUEEN-BEE For 25 cents

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As the supply of these splendid Queens is limited, we prefer to use all of them in this way—for getting new subscribers. But if any one wishes to purchase them aside from the Bee Journal subscription, the prices are as follows: One Queen, 75 cents; 3 Queens, \$2.10; 6 Queens for \$4.00.

We expect to be able to fill orders by return mail, or almost as promptly as that, so there will be no great delay, at any rate.

Remember, the Weekly American Bee Journal one year and the Queen—both for only \$1.25—to a NEW subscriber.

Now for your name and \$1.25—and then the Queen that we will send you. Address,

GEORGE W. YORK & CO.,

144 & 146 Erie Street, CHICAGO, ILL.

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Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

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Honey=jars! 1-lb. square jars, \$5.00 per gross; No. 25 jar, porcelain top, \$5.75 per gross; nickel cap, fancy, \$5.50 per gross. All clear flint glass. We ship from N. Y. City. Cartons, shipping-cases, every thing a bee-keeper uses. Tested Italian Queens, \$1.00; untested, 70c. Catalog free. Apiaries are located at Glen Cove, Long Island.

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Queens Now Ready to Supply by Return Mail.

Golden Italians have no superiors and few equals; untested, 75c; 6 for \$4.00.

Red-clover Queens which left all records behind in gathering honey; untested, \$1; 6 for \$5.

Carniolans, the so highly recommended, being *more* gentle than others; untested, \$1.00.

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A JOURNAL DEVOTED  
 TO BEES  
 AND HONEY  
 AND HOME  
 INTERESTS.

ILLUSTRATED  
 SEMI-MONTHLY  
 Published by THE A. M. DOOLITTLE CO.  
 \$1.00 PER YEAR  
 MEDINA, OHIO.

VOL. XXX.

AUG. 15, 1902.

No. 16



IN THE WAX-PRESS the lever gives continuous pressure, but not the screw. But the screw can be made continuous too. Instead of a single head-plate have two, with a spring or springs between them. [S. T. Pettit made this same suggestion. But the combination of a screw and spring would make the apparatus expensive, I fear.—Ed.]

PHACELIA TALK in last GLEANINGS leaves still untouched the main question, "What is the phacelia that Europeans got from California, and is so valued in Europe for forage and nectar?" Do you California fellows know any thing about it? Some of you please say yes or no. [Will our California friends respond with what information they have?—Ed.]

W. L. COGGSHALL, the same man who gave us the valuable hint about the little cleats on smokers, is the man who told us about coffee or gunny sacks for smoker fuel. He said, "Roll up your sack in a roll, tie a string around it once in about six inches, then take an ax and chop 'er up." [Yes, that is so. He is the man, although I had forgotten the fact.—Ed.]

BISULPHIDE OF CARBON, C. Davenport says in *Amer. Bee Journal*, he has proven does not injure honey for winter stores. Moreover, comb honey subjected to the fumes for 3½ hours or longer showed no trace of granulation the following spring, and he wants to know whether that was the effect of the bisulphide. [I should say that it was only an incident, or, rather, a *coincidence*. I do not quite see how the fumes of the bisulphide could sufficiently penetrate the capping to such a degree that the honey would not granulate. It may be well for us all to watch the matter, for Davenport is not a guesser at things.—Ed.]

ADRIAN GETAZ quotes the editor as saying "it is nature's way to raise queens during the swarming season," and adds, "That's true." I arise to remark that it is also nature's way to raise queens after the swarming season is all over. Remember that *every queen is superseded* at the close of her life. In an apiary left to nature, if there is no swarming, *all* queens are superseded queens, and the superseding nearly always takes place at or near the close of the harvest. I suspect that, if a census of all queens were taken, it would be found that half as many, possibly quite as many of them, were born in August as earlier. [I think you are right.—Ed.]

G. M. DOOLITTLE says, p. 634, "It is now the 30th of June, and clover is on the wane." Clover is usually on the wane here about that time; but I never knew a year like this before, and never expect another like it. The cold wet weather seemed to keep clover back, and it was waxing instead of waning June 30, and Aug. 5 finds more clover in bloom than any previous date. Whether the bees will store any thing from it I don't know yet. [You have not yet told us definitely, doctor, just what the season has been with you. Lately I have been scanning your writings closely to get an idea as to whether there was any honey in sight. Of course, you could not determine exactly; but you could tell whether you had any honey at the moment of writing, and whether the season had been good, bad, or indifferent.—Ed.]

FOR THE BENEFIT of Niver and ye editor I'll label this Straw "Not loaded." Not the least suspicion of a joke about it. Years ago I got a lot of loose-hanging frames that were made of basswood. Although end-bars and bottom-bars were ¾ wide, leaving a ⅝ space between, it was a painfully common thing for them to be glued together at one end, no matter how carefully top-bars were spaced; and when a hive was raised, the bottom-bars presented a rather zig-zag appearance. But this was just common basswood, and I don't insist Groton basswood would act so. [I have seen frames of Michigan and Ohio basswood

that were not much better than those you describe; but Mr. Morton, Niver's brother-in-law, the one who made the basswood frames Niver describes, was a very fine workman, and I have not a doubt he could select a grade of basswood that would be the equal of any average pine. From what I saw of Mr. Morton's workmanship, he never used any stuff unless it was thoroughly seasoned; and for any thing so important as a brood-frame he would use nothing but the most select stock.—Ed.]

I LOOK UP to W. H. Pridgen as authority on queen-rearing matters; but isn't he pressing the argument just a bit too far when he says one can prove to his own satisfaction that larvæ fed from the start as royal larvæ are superior by comparing the amount of food fed to royal and worker larvæ of same age? Are you sure, friend Pridgen, that the extra amount of pap that the royal larva *doesn't use* is of any real benefit? What good comes from the dried jelly left in a cell after the queen emerges? Don't you think more difference is made by the kind than the quantity of food in the last two days of feeding? But while doubting the validity of your argument, don't understand me for a minute to advocate the use of larvæ three days old. I always use the youngest I can. I don't know *why* a younger larva should be better than one three days old, but I believe it is better from the simple fact that when queenless bees are left to their own devices they choose the younger larva. [I take it that, while you may differ with Mr. Pridgen in theory, you agree with him in practice; and if the bees select the younger larvæ, why shouldn't we? and if it is a fact that they do make such selection, is it not based on the theory Mr. Pridgen has propounded? What harm is it if the queen larva does have an overplus of food? Is it not the practice of nature to give a lavish supply? and if lavish, is there not a reason for it? I don't know; but surmise that nature is not wasteful.—Ed.]

I SUSPECT there are some things about that filling of brood to top-bars not fully understood—at least by me. Certainly there will be more honey in my frames later on, else the bees would starve in winter. Replying to your question, Mr. Editor, when my bees have not been busy at starving they have been storing *very slowly*. I *think* that years ago there was more honey in the tops of the frames. It may be the difference in seasons, but I more suspect the difference in bees. You may be right—I think you are—in believing that there will be more honey under top-bar after flow is on. But will not the brood be at its utmost at the *beginning* of storing? and then if there's nothing to hinder their *starting* in the sections there would be nothing that "would make the bees very loath to go up into the supers" afterward, for after they are well started you know they will not only cross two inches of honey, but six or

ten inches, to store in an upper story. Let us make careful observations to try to find out more about the matter. [From what you have said elsewhere, I take it no honey has been coming in to speak of, and therefore the brood in your frames would be much higher than it was with us during the corresponding period. But there will generally be some honey, according to our experience, with the average bees above the brood, even if the frame be shallow. But the deeper the frame the larger amount of honey there will be; and the less inclined will the bees be to go up into the supers. Perhaps the truth is somewhere between us.—Ed.]

DR. GANDY, p. 605, says that by his method bees may be made to produce double the ordinary surplus and perhaps more. But as I read further on I find that conditions with him are so utterly different from mine that it is hardly worth while for me to consider his plans. He says, "Bees, even in an eight-frame hive, generally use the two outside frames on each side of the hive for honey and pollen, and this leaves but four frames for brood-rearing." In this locality, unless a colony is very weak, there will be at least six frames of brood, seven is common, and many have brood in eight frames. If there is another spot in the world where a strong colony will keep only four frames filled with brood in an eight-frame hive, where is it? Another thing wouldn't work here at all, and I don't believe it would in any other place aside from Dr. Gandy's. After a swarm started to come out he gave additional surplus room, and the swarm stopped coming out, the bees already out returning. If a colony of mine started to swarm, you might take off all supers, and pile on empty supers clear up to the clouds, and the swarm would keep right on just the same. [I do not believe Dr. Gandy, although the words might warrant the construction, meant just what you imply. He certainly could not mean that, when a swarm is actually coming out, it would stop at the *very moment* the bees could have more room. I have traveled over the country about as extensively as any one among bee-keepers, I believe. But I never heard of a condition that was any thing like this; therefore I do not think Dr. Gandy meant what the words imply. But there is a great deal else that he says in the way of strong colonies and artificial pasturage that deserves more than passing notice. See editorials.—Ed.]

READING "how to burn a bad case of foul brood," p. 641, raises the question whether it would not be less loss to disinfect bees, hive and all, with formalin, *if* it is thoroughly established that formalin will destroy all spores. Of course, the disinfected bees would be dead. [But is it settled that formalin will destroy the spores, even if it does kill the bees? and would you, doctor, if you had only one or two cases of foul brood in a yard, wish to take your chances?



We know what fire will do; and my own notion is that a bonfire would be cheaper to apply than any concoction of drugs we could get up. But a drug is useful when it will kill the bacilli, even if it will not kill the spores; and we make it a practice to always put naphthol beta in the syrup to be fed to bees. It costs little or nothing, and prevents foul brood from getting into such an active state as to be positively dangerous in the vicinity. Formalin may accomplish the same thing; but I am still of the opinion I would not rely on any drug to kill the spores, even if it did kill the bees. But I am almost positive it would have almost no effect on spores. Boiling temperature is about 212. The heat of an ordinary wood flame is about 975 degrees. When that is applied to the inside of a hive to such an extent that the wood is blackened in every crack and crevice, I think we may be reasonably sure the spores are destroyed. But if you take the view of Mr. McEvoy it is not necessary to disinfect hives. Recently at one of our outyards we took two old hives that we thought had contained foul brood and had not been disinfected. Healthy colonies were put in them, partly for experiment, partly because we did not wish to go to the trouble to disinfect double-walled hives, and partly because McEvoy said it was not necessary. Both of those hives subsequently developed foul brood. I can not help feeling that it is best to err on the safe side. About two minutes of time will enable one to disinfect any hive, inside and out, if held over a flame. If there were 200 hives, to make liberal allowance it might take half a day; but what is half a day's time compared with running chances of having foul brood? There, I am running off from my question; but having seen the results of foul brood, I am getting to be quite a crank on it; and I believe it is my duty, occupying as I do this position in this journal, to keep on preaching disinfection when it costs little or nothing, and we positively know of a simple and sure way that will remove all sources of disinfection; for we never know whether, in shaking or removing the frames, we have caused honey to drop from diseased combs on to the inside of the hive.—Ed.]



Summer days cut short their course,  
Seeming scarce begun;  
Chilly nights, autumnal sounds,  
Follow south-bound sun.



Mr. F. J. Root, of New York, in writing to the *Progressive Farmer*, of Raleigh, N. C., speaks of the great benefit that would accrue to the health of the nation by a more liberal use of rice. Of the rice lands of the United States, only a third is now used for that purpose. In speaking of honey in this connection he says, "Honey, too, is not found on the table half as often as it ought to be. It has been regarded as a high-priced luxury, while it ought to be a regular staple article. We are too much given over to pork and potatoes." By the way, if there is a culinary Damon and Pythias it is honey on rice. It is one of the finest combinations that can be had.



What bee-men are suffering in Australia will be apparent from the following extract from a private letter sent to a friend of mine, who forwards it to me:

What pastoralists and stock-owners are going to do should the drouth continue, God only knows. Throughout the western districts, places where dams and waterholes have retained their moisture year in and year out for twenty years are now dry and dusty wastes, and for hundreds of miles the entire face of the country is completely bare of every vestige of vegetation, save, perhaps, a few trees of stunted growth, and even upon these the leaves and branches hang dull and limp. Queensland is almost as bad. Our flocks and herds are little more than bags of bones, panting and trembling for food and water. The ubiquitous hare and rabbit, as well as the kangaroo, have fallen victims to the ever-present famine.



The Chicago and Northwestern Railway has the following to say to "the boys" in its employ:

Cleanliness and neatness are important factors in the railroading of to-day, and these considerations alone are sufficient warrant for a prohibition of the use of tobacco by employees when on duty. We desire that our employees shall not make our property disgusting to travelers by the use of tobacco, and themselves steeped by tobacco-poison while on duty. I believe, however, that the use of tobacco by railroad men is fast decreasing, and the time will come when a tobacco-user will be as unwelcome in the transportation departments of the railroads as a drunkard is now.

Concerning this matter the Ram's Horn says:

Young men who are contracting the tobacco habit in any form, or who take liquor as a beverage, or associate with those who do, may as well give up all hope of entering business life. They are not wanted. The door of success is shut before they approach its threshold.

And yet nearly every man and boy in the United States and Europe uses the weed.

*J. H., Mass.*—Unless honey is coming in pretty briskly and unless, too, the colony itself is very strong, the bees would not go into the comb-honey super, even though they might apparently be working, flying in and out of the entrance, and even though there might be acres of white clover and other flowering plants. The honey-flow must be strong, and the hive must be boiling over with bees of the right age. The cover must be tight, and the super warm. In localities subject to cool nights it may be advisable to put a protecting case over and around the super. You will find full particulars regarding these conditions under "Comb Honey," in our A B C book.

## AMERICAN BEE JOURNAL.

E. E. Hasty's writings are conspicuous for their absence in the Old Reliable.

Mr. R. A. Burnett, the well-known commission merchant of Chicago, will be at the Denver meeting.

A Canadian writer says good vinegar will afford almost instant relief from bee-stings. Mr. York suggests that *honey* vinegar be used.

In speaking of selling honey on commission, Mr. H. R. Wright says, "I have sold honey extensively for the past 30 years on commission. From my knowledge of the business, and observation of the marketing of honey, if I were a bee-keeper I would place my product in the hands of a commission merchant in preference to trying to sell to the bargain-hunters."

Mr. S. A. Niver protests against market quotations of honey for July 24 under date of March 6. Mr. York explains it by saying that the quotations are good as quoted, and that no change in price has been made since the date given. Very often those who quote for GLEANINGS simply say, "No change," in which case we date the quotation as near the day of publication as possible. Regardless of the date, I think the quotations are about right in either case.



## PARALYSIS AMONG THE BEES.

"Good afternoon, Mr. Doolittle. How is the honey crop this year?"

"Very light indeed, so far. We have really had only three days when nectar was brought into the hives more than about what was needed to support the bees. July 2, 4, and 6, it did not rain, and the atmosphere was just right for the secretion of nectar in the clover-blossoms, and the bees worked with a will. In fact, those days seemed like a flow from basswood, and the bees went into the sections, drew out the foundation very rapidly, and I had hopes of quite a yield of section honey, even though it had rained 28 out of the 30 days of June. But it came on rainy again, so the bees could not get out of the hives till the 11th, when a north and east wind sprang up, which is always unfavorable to nectar secretion, especially with clover, and that was the last of our white honey."

"Do you think you will have any sections completed?"

"From the little I have examined I think the most of the bait sections are nearly capped over, so that there will probably be from six to eight sections to the hive. But it has been so slow in capping that there will be little that will class as even No. 1 honey."

"Sorry you did not have a better crop. But that was not the real reason for my coming (by letter) to see you. I fear my bees have paralysis. At some of the hives many bees seem to be swollen up, and seem to shake as if they had the ague, some of them being smooth and shiny. There is lots of brood in these hives, but in some of them the bees are apparently dying faster than they are replaced with the emerging brood. In front of two hives the bees lie dead in heaps. Do you think the trouble is paralysis?"

"From your description I think there is little doubt that your bees have paralysis."

"How long has this disease been known?"

"I do not remember hearing any thing about it previous to the earlier eighties; and when it was first heard of it was under the name of 'the nameless bee-disease,' if that can be called a name. For a time it made very rapid strides, till there were very few apiarists who were not familiar with it, either in their own apiary or in that of some neighbor, during the nineties. But since the ushering in of the twentieth century, the disease seems to be on the wane, or, at least, very little is said about it now."

"What is the cause of this trouble?"

"That was the *great* question in the minds of all those who had it in their apiaries; for where the cause can be fully understood, a remedy is always soon found; but, unless I have been remiss in my reading, no one seems to be sure that he knows what the cause is. Many guesses have been made; but as the years have rolled by they have proved to be only guesses, and I doubt our having any thing reliable as to the cause of this plague to the bees."

"But can you not tell me what I can do to help these colonies?"

"Such telling would be little more than guesswork. When the disease first made its appearance some of the knowing ones told us the whole trouble came from not letting the bees have access to all of the salt they wanted, and from this it was said that, if a strong brine was made and sprinkled over the bees and combs, it was a certain cure."

"Did you try it?"

"Yes, I tried it, and it was tried by bee-keepers quite generally; but it was soon apparent that it was of no use as a general remedy. Then salicylic and carbolic acid were recommended, not only as a cure for the disease, but as a preventive as well; but when the general public came to use them, and apiarists, whose knowledge was the practical side of bee culture, the verdict was, 'had little or no effect.' Therefore, so far as I know, 'what can I do to



help them?' still remains an unanswered problem."

"I have been told that the trouble comes from the queen. What do you think of this?"

"In reply to this I must say, as I did to the other remedies, that there were those, some years ago, who told us the whole trouble came through the queen, and that, if the queen was killed and another given in her place, then, as soon as the bees emerged from the new queen, the disease would begin to grow less and less; and when all the bees from the original queen had died, the colony would be free from the disease. This was tried more largely than any other remedy; but after a thorough trial of the same by hundreds, if not by thousands, it was found that, in the majority of cases, such change had no effect whatever."

"What was your experience with this remedy?"

"The first time I tried it the colony kept along about the same till fall come on, when it got better, and I thought I saw a ray of hope in the matter, although I had noticed that diseased colonies which lived through till then generally got better in the fall. But the next year I had another colony come down with it, the worst of any thing I had ever had; and to fully test the matter I took their queen away and gave her to a healthy colony, at the same time giving the diseased colony a young laying queen. The result this time was that the colony to which I gave the diseased (?) queen went right on in a prosperous condition, with no signs of the disease, while the diseased colony showed no abatement of the disease, they becoming so weakened in August that they were likely not to repel robbers, when they were united with another colony."

"Did you have any further experience with this matter?"

"Yes. For a time every colony that was put on a certain stand, when set from the cellar, had the disease during the summer, so I concluded that location had something to do with it, or that the trouble came from some infection which arose out of the ground at certain places. But after a few years the colonies set on this stand were all right, and one on the opposite side of the apiary contracted the disease; so that again I came to the conclusion I knew nothing definite about this trouble."

"You speak as though the disease was on the wane, and this gives me courage. How long since you have seen any symptoms of the disease?"

"I have seen very little of it since 1897. One colony showed some few bees diseased, with swollen, shiny abdomens, and shaking motions, in 1900, and that is the last I have seen any thing of it. There was a time when bee-keepers quite generally believed that this disease would ruin our pursuit; but you are the only one who has asked me about the matter in over a year; and I have seen very little in print on the matter during that time. I do not think you

need to worry over the matter if only a few of your colonies have the disease. But I am glad you called our attention to this, for it is well for all to know that there is such a disease as bee-paralysis, and I hope that whenever and wherever any thing new is discovered in the matter it will be told of in the bee-papers. Perhaps when the editor of GLEANINGS sees this he will tell us what he has heard in the matter of late."

[So far as I can see, friend Doolittle is orthodox in his teachings, as he usually is, regarding bee-paralysis. Scientifically we know little or nothing about it; and as to a cure, we know no more. I have heard little myself lately about bee-paralysis; but four or five years ago it reached a virulent stage in the case of one of our Southern subscribers—so virulent, indeed, that his whole apiary was destroyed, and along about that time I heard of its killing out many colonies in California; but of late I have seen little or nothing regarding it. My own conclusion was that we knew of no cure—that it was practically harmless in the North, but very destructive in some localities in the South. Our friend O. O. Poppleton, of Stuart, Fla., has had an experience with this disease, that is not altogether pleasant.—ED.]



### QUEEN-REARING.

**Do we Rear Queens by the Best Methods? the Proof of the Pudding is in the Eating.**

BY HENRY ALLEY.

It seems to me that the methods now used by many who rear queens are not the best, nor do they come very near the most natural ways—that is, the ways the bees do it if not meddled with after being made queenless. It is not my purpose to criticise any method used, yet I do not think good queens can be reared by some of the methods now being practiced; in fact, I know from actual experience that first-class queens can not be reared while there is a fertile queen present in the hive. Now, why is this so? Perhaps I can best explain the reasons why in this way: What are the conditions under which bees rear queens? I know of only three reasons why bees will rear queens:

1. When preparing to cast a swarm.
2. When about to supersede an old queen.
3. When deprived of their queen by accident or otherwise.

Pretty good queens can be reared by almost any method while there is a good flow

of nectar in the fields. But the honey-flow season is very short, and the queen-dealer must commence to rear queens before there is much natural forage, and continue to rear them long after the time the bees can collect honey from flowers.

I will not discuss the question under the first condition, only to say that not so good queens can be reared, even under the swarming impulse, as can be reared at other times, even when feeding has to be resorted to to keep up proper stimulation. I am aware that the old well-read bee-keeper will make some remarks here. Well, let me explain what I mean, and I believe that a good many bee-keepers will agree with me.

I am on the point that as good queens can not be reared by bees having a laying queen as can be done by queenless bees. Now for the reasons why:

Except at swarming time bees do not feel the need of more than one queen in the colony. Now, if cell cups are given a colony over the brood-nest, does any one believe the bees feel that more queens are needed? If the presiding queen had a chance to destroy those cell cups she would surely do so, and the bees would not oppose her in her work. This is not so in natural swarming unless the notion of swarming had been given up; nor is this so when cells are being constructed to supersede an old queen.

Queenless bees can always be depended on for rearing queens of the best quality. Of course, all understand that I do not mean bees that have been queenless for a long time. Only bees just made queenless will produce first-class queens, and they will rear only one batch of good queens: so, don't work them too hard.

I do not believe the best queens can be reared by using artificial cell cups. I think eggs furnished to bees from which they can select the egg will produce much better queens. It is all very nice and very scientific, preparing and fixing up the artificial cell cups; but I can get bees to build more cell cups than I need; and as they can do it so much quicker and better than I can, they are allowed to do it.

I am rearing queens by an entirely new method. I now have in my yard some of the largest and finest-developed queens that can be found in the country. No queens are being reared over the brood-nest, nor by any plan that permits a laying queen to be present while cell-building is going on. I am using only nature's ways. Isn't it just as natural for bees to rear queens when deprived of their queen as it is at swarming time or when superseding our old queen? I am using nature's ways only in accordance with common sense, and as long experience dictates.

Some one has said that more poor queens are reported now than twenty years ago. Well, that statement ought not to surprise any one. Where one queen was reared and sold twenty years ago, there are now over one hundred sold. Just look at the number of queen-dealers rearing them by the thou-

sands! It will make no difference by what method queens are reared, more or less poor queens will be sent out, and more or less poor queens will be reported.

By the way, some one has said in these columns that queens are worthless unless fertilized within 21 days from the time they are born. This year I had 9 queens that were 30 days old before they were given a chance to mate. Six of them mated all right. One of them was sent to Arthur C. Miller, of Providence, R. I., to see how she turned out. Right here let me also say that these queens were confined in nursery-cages the entire thirty days. They were not in the least injured by the long confinement. The above statement, like many others that get into the bee papers, can easily be shown to be incorrect. Why not have more discussion on queen-rearing? It is a subject that can not be worn out very easily. Better queens can be reared than are now being sent out by a large number of "queen-dealers." In the production of queen-bees, man can outdo nature. I can show that man can beat some of nature's ways in many respects, and yet 'tis only nature's ways used in a practical common-sense way.

When bees rear queens while they have a fertile queen in the hive they do not act as though they had any interest in their work. 'Tis kind o' do as you please. But when bees have no queen the conditions are quite different. 'Tis a case of compulsion—do it or go out of existence. Bees in such a condition work with a will, and the result is good queens.

Wenham, Mass., July 24.

[We have tested all the different methods of rearing queens; and the one that we get the best queens from, the longest-lived, is the one having its foundation in Doolittle's book; and I dare not say or publish in these columns just what is said of them, for it might be construed as a big flaming advertisement for the Root Company.

But the Doolittle method does not depend on upper stories, and when it does use them it is only under certain conditions. Those conditions are explained in his book. Sometimes we use the drone-cup plan and sometimes the artificial cup; but with either we graft the cells. By so doing we can, if we choose, rear thousands of queens from the best breeder in the yard. But if we give a frame of eggs from that best queen, and let the bees do their own selecting, as you tell about, only a few of those eggs will be utilized for the queens, while the rest will be used for common bees. By the grafting plan we are enabled to use a very large percentage of all the eggs a choice queen may lay for the purpose of rearing *queens* and not bees.

Our own experience, and it covers 25 years, would not be altogether in line with what you write, although we would agree with you in some of your propositions. While we have cells built in upper stories,



under certain conditions, a great majority are built out in supersedure colonies or those actually queenless. I do not believe that there is any method known—and we have great respect for our veteran queen-breeder Mr. Alley—that will produce better queens than we are now rearing.—ED.]

### QUEEN-REARING.

#### The Comb; How to Prepare it; How to Remove the Cocoons with the Young Larvæ.

BY W. H. PRIDGEN.

The comb from which the transfer is made should be such as has been in use until several generations of brood have emerged from it, and is, consequently, quite dark when held up to the light. While some that is quite old and thick works well it is not necessary to use the very oldest that may be found. It should be thick enough for the bottoms of the cells to lose their hexagonal shape and look glossy. When such is shaven down to within  $\frac{1}{8}$  inch of the bottom of the cells on both sides, with a keen-edged slightly heated thin table-knife, and bent back and forth, the gun-cap-shaped cocoons or cell-bottoms formed by the skins or silken tissues left by each generation of hatching brood will drop from it or can be lifted out with and transferred to the wax cup with the stick herewith illustrated. All combs do not work alike. The glossy cocoons will almost drop from some after they are shaved down, while others seem to be glued in, and have to be loosened up with the pointed end of the stick; and any of them seem to be more easily removed from a piece cut some distance from the edge of the comb or near the center. When one is found that works unusually well it can be used to patch the holes cut in other combs by cutting a piece the size and shape of the piece containing larvæ to be cut out. Place it over the spot selected, and use it as a pattern to cut the comb to be used in transferring by, and simply slip it in the opening made.

Four or five days later this patch may be found containing larvæ of the desired age, and the operation can be repeated continually during the season.

As a rule, if the hole made in a comb is not patched the bee will fill it with drone comb, which lessens the chances of always finding a very small spot containing larvæ all of the right age. This is often the case when, from any cause, brood-rearing has subsided, as the queen is more inclined to deposit eggs scatteringly at such times.

But, one does have to cut out a very large piece to get the number wanted, as a

piece one inch square will supply enough to graft two or three batches when all are of the right age.

#### WORKING THE BROODER FOR EGGS.

Many avoid taxing valuable breeding queens to the extent of keeping them in full colonies, claiming that they are not so soon exhausted; but when kept on only three or four combs, all available comb is soon filled with eggs, followed by a check in laying unless combs of brood are removed and empty combs given, which, in reality, taxes the queen nearly as heavily as when on a full complement of combs.

If only a few larvæ are wanted at intervals, empty comb can be given a few days in advance, and, when filled with eggs, removed, to be cared for by bees having virgin queens, queenless bees, or in stories above queen-excluders, by cell-builders, etc., the transfers to be made from it so long as the larvæ are the right age; but where there is almost a daily demand, the management must be such as to keep the queen laying continuously, which gives no trouble during the main breeding season, as patches of hatching eggs and young larvæ can always be found at such times.

Some doubt the advisability of restraining breeding queens in egg-laying, believing that it affects the prolificness of their offspring; but we notice that a check in laying takes place as soon as the swarming-fever strikes a colony, and that but few eggs are deposited while preparations are being made to swarm, compared to the number preceding such preparations; but this may be due to several reasons, one being that the bees do not want to be taxed with the feeding of a great many larvæ while nursing the larval queens, the secret being the importance of a large force of nurse bees with their energies bent on supplying the queens to be with ample nourishment rather than the condition of the mother, as to her prolificness, or, rather, the quantity of eggs being deposited daily, just at the time those are laid that produce the queens.

The preservation of the breeding-queens being the only factor of consideration (as to whether they are kept laying at full capacity or not), the lives of which can not be prolonged sufficiently to justify any great inconvenience in the matter of rearing daughters of the highest type from them at will, besides wishing to change from time to time to those in which we note more desirable traits, the object should be a management that affords the greatest convenience to the owner, and enable him to secure larvæ when needed, as far as possible.

One point is, to remove the breeder's hive to a new location and throw the working force into some other colony as soon as sufficient honey is being stored to check brood-rearing by the filling of the combs as fast as the young bees emerge. By so doing the colony is deprived of its field force without destroying the usefulness of these old bees, and is left in an excellent condition to resume brood-rearing in a short time, which



will be continued until the field force increases to the extent of again clogging the brood-nest with honey, in case of a continuance of the flow, or until the flow ceases, as the case may be. Under the first-named condition remove the colony as before; but if the flow ceases, uncap some of the honey in the combs, or mutilate the cappings, or else feed a little syrup every evening; and as soon as the eggs hatch, give the combs to other colonies for the brood to be sealed and then returned, thus increasing the force of young bees without their having to feed the larvæ to any great extent, and thereby, by keeping the same set of combs with breeders all this time, but few are mutilated. In this way a queen may be kept laying when there is no nectar to gather, and the small amount of larvæ in the hive will be well fed; but it should be remembered that, as a rule, if a colony has held up in brood-rearing, either from the effect of a heavy flow or no flow at all, eggs given to them will almost invariably be destroyed, and hence the advisability of allowing them to remain at such times where laid until they hatch, unless they can be given to queenless bees or to those having virgin queens.

The average honey-producer will have but little trouble in securing an abundance of larvæ of the proper age when wanted, as, of course, this class will not attempt to raise their queens when, from any cause, the bees are not actively engaged in brood-rearing, as they will want to do the work at a time when they can raise perfect queens, and that with the least trouble and expense.

Having secured a small bit of comb, as previously described, containing larvæ just hatched, surrounded by a clear or very slightly milky speck of chyle, the larva being accepted all right when it can not be seen on account of its smallness, we are ready to make

#### THE TRANSFER OF "BABY, CRADLE, AND ALL."

This idea was conceived by Mr. Willie Atchley, a noted queen-breeder of Beeville, Texas, who ingeniously transferred the cocoons with tweezers, and met with such uniform success that he gave the plan to the public, which led to the discovery of a much more efficient tool for the purpose, and thus brings to light the best, quickest, and simplest method of transferring known to the fraternity.

As can be seen by the illustration, the transfer end of the stick is slightly rounding, and should be a fraction larger than a worker-cell, while the funnel-shaped cavity in the end affords protection to the larva or egg in the bottom of the cell or cocoon when taken up on the stick. The bulging part slightly stretches the mouth of the cocoon, and makes it fit sufficiently tight for it to adhere to the stick as a cap does on a gun-tube, and at the same time preserves its smoothness, even when sufficient pressure is exerted to make it fit smoothly in the queen-cup, and adhere to that. When a tis-

sue too thin to preserve its form is taken up, instead of the whole cocoon, which is sometimes the case, even when the most of them work well, it need not be transferred, as such are seldom accepted, while, on the other hand, there is sometimes a loose thin tissue on the outside that can be rubbed off with the fingers before inserting the cocoon in the wax cup.

Sometimes when several thick layers are taken up they separate, and one adheres to the stick and the other to the cup. The one on the stick is left ready for the next cup while the empty one must be removed from the cup into which it is left before another will stick. We seldom have the first trouble except with comb not exactly old enough, and the last when it is very old, and neither is a very serious matter.

With a piece of comb that works well the transferring can be done as fast as the stick can be inserted into the cocoon and then into the cup, while with other pieces in which the cocoons do not readily loosen up when bent back and forth it is necessary to move the stick slightly back and forth as though attempting to shove the cocoon out sidewise before it lets go and adheres to the stick.

As before explained, the sink in the cup for the reception of the cocoon is smaller than the transfer-stick, which admits of sufficient pressure when the transfer is made to make the cocoon fit snugly against the sides without its reaching the bottom and thereby becoming disfigured.

The cups should be warm enough to mash up without cracking, so as to admit of slightly stretching, for the best results. Simply press the cocoon down into the cup, give a little twist, and the work is done.

Eggs can be transferred in this way as well as larvæ, but are no better than larvæ *just hatched*, besides not being as readily accepted. Another consideration is, we can not judge of their age, and hence do not get a batch of queens as uniformly good as when all are of the same age, for the reason that the first to hatch receive better attention than the others, as is often the case with queens from natural cells.

This can be overcome in a measure by selecting eggs lying on their sides on the bottom of the cells, instead of those standing on end as the queen deposits them, as the former are about ready to hatch.

Whether we use eggs or larvæ we want them of uniform age, for the reason given above; and to be of uniform size and quality all must be accepted at one and the same time, and especially in case larvæ are used instead of eggs. The first queens to emerge from a batch of cells are almost invariably the best, but not, as some might conclude, because the larvæ from which they are reared were older, for the fact has been verified that there is not always as much difference in the emerging of the queens as there is in the age of the larvæ used; and the sooner the queen emerges or is ready to emerge after the egg is laid, the better. Although



a whole batch may be eventually accepted, but not all promptly nursed, when larvæ of as nearly all the same age as one is able to select be used, still if, on examination a few hours after it is given to the bees, some cups are found shaped up, and the inmates more lavishly fed than others, those at all neglected can have pins stuck over them as being slower in emerging, and inferior in quality.



HONEY is not being offered very freely. That may indicate a scarcity of crop, even in the East.

#### HONEY MARKET AND PRICES; A GENERAL FAILURE IN THE WEST.

As intimated in our last issue, Western honey will not be much of a factor in the Eastern markets this year. The season has been nearly a failure in Colorado. Our Mr. Calvert, who has just left Colorado for California, writes us that the honey crop in Colorado is practically a failure; but in the region of Rocky Ford there will be a fair crop, and there may be some honey about Denver; and he adds, "It looks very much as if the West this year would consume all the honey she will produce." Further advices show that Southern California has had another light rain; but it will not greatly affect the honey situation. Arizona will not be able to harvest more than one-fourth of a crop.

With regard to the territory east of the Mississippi, the conditions are but little if any different from those reported in our last issue. Reports vary much in their character. One letter, for instance, in one State will show the best honey crop ever known. Another letter coming from the same State, only a few miles from where the first-mentioned letter came, will show an absolute failure. With scarcely an exception the season shows up well in Ohio; but it varies all the way from good to bad in Wisconsin, New York, Pennsylvania, and the New England States generally. In Illinois and Michigan, except the northern part, the season has been generally poor. Taking every thing into consideration, the white-clover crop will be heavier, I think, than last season; but when all the returns are in it may show up differently. There will be less basswood honey.

The general shortage of honey in the West should cause prices in the East to advance slightly, if any thing, over last year. If our commission men in the large cities will make a note of this fact they can help

themselves as well as the general bee-keeping fraternity by holding out for better prices than prevailed a year ago at this time.

#### DR. GANDY AND HIS ASSERTIONS; CATNIP FOR ARTIFICIAL PASTURAGE.

I HOLD in my hand quite a mass of correspondence, most of it decidedly favorable to the doctor, and some of it otherwise. One man, Dr. O. E. Vermilye, writes that, after having seen Dr. Gandy's article, he left his home in New York State and went to Humboldt, Neb., to look over the ground, because he could not believe such results could be secured. He writes from Humboldt that he has had a most delightful time with the doctor, and has been shown over his farm, and seen his large catnip-fields, and he is convinced of the value of catnip as a honey-plant. He closes by saying he is learning modern bee-keeping, and expects to keep bees on the Gandy plan.

There are several who write they bought the doctor's honey at 15 cts. a pound. One hotel-keeper (the proprietor of the Park House) says he purchases a ton and a half of honey of Dr. Gandy each year, paying 15 cents a pound for it.

Under date of Aug. 5 Mr. J. W. Bryant, of Humboldt, writes that last fall he sowed 14 acres of catnip and quite a little of sweet clover, and that he is expecting to sow 25 acres more this fall; that on the old plan of bee-keeping his crops have been light, but that, if he kept bees on the Gandy plan, with plenty of catnip pasturage, he thinks from what he has seen he could equal Gandy's yield. He further says he sold two wagonloads of extracted honey for Dr. Gandy last fall, and that he has sown catnip seed for the doctor for four years along the roadside.

Capt. A. M. Enoch, of Humboldt, writes that he has been a neighbor of Dr. Gandy's for over 30 years, and that his large crops of honey are mostly from catnip and sweet clover. He is a member of the city council, he says; has served as police judge and justice of the peace, and is familiar with Dr. Gandy's work and methods.

Another writer, Mr. Z. A. Hobbs, also of Humboldt, says he has sown bushels of catnip and sweet clover, and lives on one of Dr. Gandy's farms of 200 acres; that it is in his contract for the farm for another year that he shall sow 30 acres of catnip and sweet clover.

Another writer, whose name I can not quite make out, at Elk Creek, Neb., says he has about four acres of catnip and an abundance of basswood near by, but that the bees will not leave the catnip to work on basswood; that he has been gathering seed for Dr. Gandy for seven or eight years, and has delivered the same to the doctor. All the waste ground around Humboldt, and the roads leading into Humboldt, he says are thickly sown with catnip, and estimates that the amount all told in the vicinity is

between 25 and 30 acres; that he has looked into Dr. Gandy's hives, and says he knows "the statement of the yield of honey to be absolutely correct."

Dr. Gandy, in writing for himself, says the substance of his letter in GLEANINGS was published in the *American Bee Journal* some time last September, and that the same was extensively copied at the time, and no one appeared to question the statements. He has no catnip seed for sale, but did sell one man a little as an accommodation.

He says he sowed last year nearly 50 acres of catnip, but that, on account of the drouth, it was largely killed out; that, moreover, he has devoted sixteen years to working on artificial pasturage, and that time he has planted 80 acres of buckbush, 100 acres of hoarhound, has tried horsemint, mustard, and numerous other plants, and as a result has found nothing to equal catnip and sweet clover. He says that two or three bee-keepers following his method have been able to equal his yield. He admits that his figures look a little strange to Eastern bee-keepers, but that he is prepared to prove all he says, and courts the fullest investigation. His honey is sold mostly in the local towns, and is delivered in wagons. Being a physician he preaches the food value of honey, and as a result has induced many families to use honey in preference to any other sweet.

Over against these statements are some doubting Thomases—some who live right in the vicinity. One man in particular says he does not know how such results could be secured and he not know it.

The evidence in hand is very conflicting, and if I had the space I would publish the whole of it, barring some portions that are not intended for the public. As it is, I have endeavored to give a brief synopsis of each letter and the names of some of the writers. I hold in my hand all the correspondence, and am prepared to show it to any one who may visit our office, who desires further information.

But I wish to enter a general caution to the general reader against getting excited over artificial pasturage. The editor of GLEANINGS and of the *Bee-keepers' Review* are planning a trip to Humboldt, and I therefore suggest that you *do not waste any time or money, but wait till we two can go into the field and see with our own eyes.* There is no immediate hurry; and along about the middle of September Mr. Hutchinson and I expect to be on the field.

There, you have the facts before you as nearly as I can give them without going to Humboldt; but I will say this: No one denies that Dr. Gandy is a very wealthy resident of Humboldt, and that he keeps a good many bees. Besides owning a large number of farms he owns several hotels. The only disputed points are whether he is able to produce the results he has stated from bees, and whether he has the acreage of artificial pasturage he claims.

THE CONVENTION AT DENVER, SEPT. 3, 4, 5, WEDNESDAY, THURSDAY, FRIDAY, BEGINNING WEDNESDAY EVENING.

RATES from Chicago to Denver and return will be \$25; from St. Louis, \$21; from St. Joseph, Kansas City, and Omaha, \$15. If you desire to stop off at any point you will probably have to make special arrangements. Whether the railroad companies will allow a stop-off I can not say. A party of bee-keepers will start from Chicago via the Northwestern, on Monday evening, Sept. 1. For further particulars write Geo. W. York, 144 Erie St., Chicago.

Such men as W. L. Coggsall and W. F. Marks, of New York; George E. Hilton, of Michigan; Dr. C. C. Miller; Mr. W. Z. Hutchinson; Dr. A. B. Mason; E. T. Abbott; G. W. York; H. H. Hyde and Louis Scholl, of Texas; F. E. Brown, of California; Huber Root, E. R. Root, and quite a number of others whose names I do not now recall, will go to Denver. Those who expect to go had better go to their agents and inquire for rates at once.

Mr. W. Z. Hutchinson, Flint, Mich., will go by the A. T. & S. F. route, and any who desire to go with his party would do well to write him early. Just which route Huber and I will take is a little uncertain at this time. I wish to make my plans so I can stop at Humboldt, Neb., on my return.

The low rates to Denver and return are secured through the Letter Carriers' Association, and apply to every one. The rates apply pretty much through the United States. Those who are coming from California will be glad to know that there will be provision made for them. President Hutchinson writes:

*Friend Root:*—I have just received notice from the Santa Fe Railroad that they will sell round-trip tickets from California to Denver and return for \$55 to accredited delegates to the National Bee-keepers' Convention. Date of sale, Aug. 28. Final limit, 60 days.  
W. Z. HUTCHINSON.

Those from the far West need to get their credentials from their local society.

MR. DANZENBAKER AND BRUSHED SWARMS.

WE have just had a brief visit from Mr. Danzenbaker, who is on his way to California on special business. In talking over the matter of the brushed-swarm plan he mentioned the fact that he had practiced for years that method of controlling swarms; and by it he is enabled to get a powerful colony in one of his shallow brood-nests for comb honey; and if there is any honey at all to be had, he is going to get it, and that with a small probability of swarming.

I have been looking up this matter of brushed or "shook" swarms; and in the face of the favorable testimony concerning it I am surprised that bee-keepers have not made more of it. Why, just think of it! if swarms can be controlled in small brood-nests when running for comb honey, it will be one of the greatest boons that ever struck modern apiculture. If any one else has had experience with brushed swarms I wish he would tell us about it.



A TALE OF THE BEES, OF THE BOY, OF THE  
DOG, OF THE MAN, AND OF THE HORSE;  
HOW TO TREAT HORSES FOR BEE-  
STINGS.

I WOULD say for the benefit of our readers, that, owing to the heavy traffic on the railroad close to our factory, accompanied with smoke and noise, Mrs. Root, myself, and Master Leland, our eleven-year-old boy, moved out about two miles and a half from town on to a farm owned by an uncle known familiarly in years gone by as "Neighbor H.," and who during these years has reared for us hundreds of queens. The house is one of the old-fashioned kind, built 52 years ago, and which had been abandoned for some time. But it suited Mrs. Root, who said that *any* place remote from the smoke of our factory and the locomotives, and from the shriek of whistles and the clang of bells, would be more tolerable and "livable" than our modern dwelling near by the aforesaid nerve-destroyer, and for the summer, at least so far, we have been away from the maelstrom of busy life. I have been going to and fro on the bicycle to the factory each day, and driving during bad weather.

Near the old house referred to we located an apiary of something over a hundred colonies; and during the spare evening hours I have been working out among the bees.

Well, Neighbor H. had been running the farm, driving out from town every day. On this particular day of which I speak he was cutting timothy, and the mower and reaper were going up and down the field. He left his horse browsing, hitched to the buggy in the field loose, while he went to the further end of the field to see to the men. In the mean time the horse had got over into the uncut hay, and was having a "regular feast." Leland, seeing this, concluded that Uncle Hen would not like it, and therefore, with the best of intentions, proceeded to back old Brownie (that is the horse's name) out of the timothy. But Brownie was obstreperous, and paid but little heed to the boyish voice; whereupon the boy grabbed the whip, and then the old horse concluded to move, and that on a double-quick. She started in a bee-line for the bee-yard, without any fence around it, the boy after her on foot. Very fortunately for the boy a stray bee stung him, and started him off in another direction. Mr. Harrington saw what was coming, and made rapidly for the horse. In she went among the bees under the low-spreading apple-trees, while the boy was making for parts unknown. Pretty soon the horse began to kick, and then a regular stampede ensued. The more the bees stung her, the madder she became. She kicked two hives over, and, as if out of revenge, she would walk right up to a hive in front of her, and stamp one of her front hoofs right through it. She actually ran one foot right through one super of comb honey, down into the brood-nest, and—such a racket! Mr. Harrington arrived on the scene just in time to find the

horse covered with bees and kicking every thing in sight into smithereens. He managed to get her free, and started her for the open barn. He himself was literally covered with stings. He raked the bees out of his hair by the handfuls; and when he emerged from the yard there was scarcely a spot on his face or body that you could place a finger on without putting it on a sting; and the "old mare"—well, she shared about the same fate.

About this stage of the proceedings a family dog, very much prized by the children and by all the members of the family in particular, hearing the horse kick, and seeing the unusual fracas among the bees, rushed out into the yard and barked at the kicking horse, thinking that the thing for her to do was to get out from among the bees. But, poor dog! his intentions were good, the same as was the boy's. The bees rushed after him, and the way he started for the timothy! Nothing was heard of him till the man with the mower heard the yelp of a dog, and it came from poor "Trixie," who had hidden to get away from the bees; and when the mower came up he was struck by the knife in one of his hind legs, giving it a bad wound. The high keynote of the mad bees, the kicking of the horse, the crying of the boy, all of these and more made things lively for a while. Mrs. Root was on the point of getting on her wheel, to go to town and get me to come home, and thus help out "poor Uncle Hen." She thought of sending the boy on his bike; but for a time at least she knew it would be almost fatal for either to leave the house, as the bees had taken possession of every thing within several rods of the premises.

Now, Neighbor H., or "Uncle Hen," is an expert horseman as well as bee-keeper; and if there was any man in all the United States who was capable of righting the situation of a horse so badly stung it would die in a few minutes, and pulling together five powerful colonies that had been kicked all into smithereens, it was Uncle Hen. Without a veil or smoker, and notwithstanding the hundreds of stings that were being stuck into him, he righted all the hives, put the supers and covers on, and then made a rush for the barn, covered with mad stinging bees. He clawed them out of his hair, and smashed them while they were clinging to his clothing, which they stung clear through, they were so mad. He called for a pound of salt, and in the mean time proceeded to rake the bees off the horse. He wrapped the salt in a paper, and pushed paper and all down the horse's throat. She was beginning to swell, and it was evident she would die in a few minutes unless the salt would act, and something *did* act. Very soon the swelling began to ease up; the horse seemed easier, and in the course of an hour, when given grain, she ate as if nothing had happened; and in two or three hours more she was driven home by Mr. Harrington, two miles and a half, in the very buggy in which she had been hitched,

and from which she kicked herself clear. With some binding-wire the thills were made to hold together, and man, horse, and buggy went to town as usual.

I had a Bell telephone in the house; but, unfortunately, it had not been connected, and so I could not be reached. When I arrived home about half past five I heard a high key in the apiary, and, to my consternation, I saw something had happened. There was the buggy, out of which a horse had evidently kicked itself free; there were the hives, in pieces and splinters; parts of covers, chunks of honey, and robbing galore. I rushed to the house to inquire, but found it locked. I went to the back door, and found numerous blood-spots on the back porch. Something surely had happened. I then began to think about my only boy, and wondered whether or not my wife had taken him to town, for the boy was fond of driving said horse, as it is very gentle. I managed to get in at the back door, and there found the dog with his leg bandaged up, and then it was all clear so far as the blood was concerned. Pretty soon Mrs. Root came in from picking berries, and made some "remarks" about my not having the telephone connected; and a while after the boy came in to tell his story.

But how *any* horse or *any* man could have received the stings that the two did, and live, is beyond my comprehension. Mr. Harrington did not take any salt nor any thing else; but he said nothing would kill him—much less *bees*. He had an ulcerated tooth a few days afterward, and for real severe pain he averred he would rather have ten times the stings he had that day. Did the stings hurt him? "Naw! After the first few had been received the rest did not hurt." That was a new fact to me, and I wonder if any of our readers have had a similar experience as to the hurting part of it. Mr. Harrington, when questioned further, says he remembers the *first* stings *did* hurt him; but notwithstanding he was stung dozens and perhaps hundreds of times afterward he insists that the last stings did not hurt him at all; but he does remember feeling slightly sick, and he knows the horse felt so by the way she acted; "but," said Mr. Harrington, "a horse can not vomit as a human being can; and if it were sick at the stomach, and there is a formation of gas, there is bound to be trouble." The giving of a pound of salt was for two reasons: First, to neutralize the poison in the system; second to physic the animal. As to whether it neutralized the poison or not—that is, whether it could get at it in the blood—I can not say; but it served the other purpose.

In talking with a veterinary physician about this experience, he said that Mr. Harrington could have done nothing better under the circumstances, although if he had been present he would have put on cloths wrung in ammonia water. When I spoke about hot water he admitted that would be excellent if applied soon enough.

For the benefit of some of our readers who may have a similar experience, it may be well to know how to put the pound of salt down the horse's throat, for Mr. Harrington says he has known other horses dying from poison from eating some weed, that might just as well have been saved as not. Animals that have been given up to die he has saved, and the manner of administering the salt is as follows: He first forces the horse's mouth open just as one does in inserting bits. With one hand he reaches for the tongue, and pulls it out as far as he can. This forces the animal to open its mouth wide. With the salt rolled up loosely in a paper he takes the other hand and pushes it down the throat as far as he can reach, pushing the arm in as far up as the elbow if possible. Then he quickly withdraws the arm, and with two hands closes the mouth immediately, and lifts the horse's head clear up in the air and holds it there until he sees that the bag of salt has gone down the gullet. Mr. Harrington showed me the whole performance except putting in the salt; and I believe that any one might be able to do the trick.

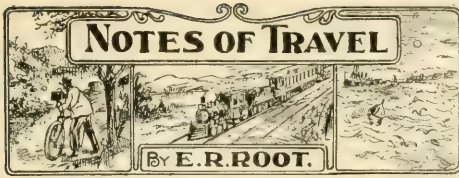
The veterinary told me that, even if our telephone had been connected, and he could have been found, he could not possibly have arrived in time to do any good; and it is doubtful whether any veterinary could be summoned in time to save a horse from dying if stung as this animal was. Salt is always available, and the physic is particularly necessary to enable the animal to clear itself in case of an accumulation of gas; for at such times there must be no stoppage in the alimentary canal.

I give this fact believing that some of our readers can make use of it. Certainly no harm can come from the use of salt; and I would also use, in connection with it, hot water; and, in alternation, cold applications of ammonia water. A blanket dipped in water as hot as it can be borne on the hand, and then wrapped around the horse and tied, would be most excellent, said the veterinary, and that should be renewed as often as possible with another blanket, which should be quickly thrown on and tied.

But the point may be raised right here: The man did not have any salt, and the horse did, and both lived. Did the salt, therefore, have any effect? Mr. Harrington says that a man can stand more than a horse; and, besides, if he is sick at the stomach he can vomit and relieve himself in that way, and the veterinary was of the same opinion.

How about the dog? The leg was cut almost through at the hock joint. Notwithstanding Mr. Harrington was covered with stings, and sick and dizzy, he stitched up the wound, wrapped the leg in a bandage, while the poor dog, with eyes almost human, said my wife, licked her hand as much as to say, "You are causing me great pain with that needle, but I thank you for your kindness, as I know you are doing the best you can."





THE ALKALI LANDS BETWEEN REEDLEY AND HANFORD, CAL.; THE DESERTED VILLAGE; GRAPE-GROWING INDUSTRY; J. F. FLORY; SOME FIGURES IN REGARD TO GROWING FRUIT IN CENTRAL CALIFORNIA.

You will remember we were at Reedley watching the thirty-mule harvester cut, thrash, and sack wheat at the rate of 1500 bushels a day. At the time of my visit to that part of California, matters were somewhat "strained" between the pear-men and bee-keepers, particularly at Hanford. I told my hosts, J. C. McCubbin and the Rambler, that my next point would be the pear-blight district, to see what I could do for the bee-keeper, and they very kindly volunteered to drive me across the country.

Now, Mr. McCubbin is a real-estate

fa for a few years. A considerable amount of money had been invested in preparing the soil for irrigation, and by running lateral ditches for the purpose of carrying the water. But here was the land, the once garden of Eden, so to speak, now a veritable desert—and why? One little word covers the trouble—alkali. Here there were thousands of acres of good alfalfa and wheat land, and it had sold at big prices; but when water was put on the land, and poured over it for four or five years, it forced the alkali of the subsoil up to the surface so that nothing of value to man would grow with the possible exception of pear-trees. I might say, in passing, that where the ground is not too strongly alkaline it will grow sweet clover when nothing else will thrive, and there are some parts of Colorado and Utah that have immense acreages of this plant; and it is in these localities that the bee-keeper is in a veritable paradise for honey. But, to return.

This same land of which I have been speaking, and on which settlers had poured their all, could not be *given* away. Once in a while we would strike an oasis where the alkali had not sweat out of the



ONE OF THE IMMENSE RAISIN VINEYARDS OF CENTRAL CALIFORNIA.

agent, and bears a most excellent reputation for dealing on the square; and as our ride was to be through a deserted village where the land had once sold at high prices, and where now the same land could hardly be given away, I eagerly accepted the proffered offer.

We had left Reedley only a short distance when we ran into the alkali-lands that are practically desert, growing nothing but alkali weeds and sage brush. As we jogged along, Mr. McCubbin pointed out to me various tracts of land that had formerly sold for large sums of money, and which had actually yielded immense crops of alfalfa

ground. All around was a parched dry desert with a thin alkali crust that looked much like brine; but on the oasis there were alfalfa, wheat, and other crops, showing a thrifty growth; but I understand that the men who live in these spots do not know from one year to another when the land will turn to alkali, or whether it will continue to be immune to its influence.

We passed through a village that once had two or three thousand inhabitants. The Southern Pacific had put up a fine station, and there were signs of once prosperous times; but the dread alkali had

come to the surface; lands had become valueless, the owners sunk their all, and were compelled to go to some other place or starve. Here and there were foundations that had supported good buildings. Over yonder was the site of a large warehouse where tons and tons of grain had been stored, raised on this very land that had turned to brine. Mr. McCubbin told me that the whole village had taken itself to wheels. The houses were raised up and put on moving-trucks, all to be moved to some locality remote from the dread destroyer of vegetable growth. This sight of former glory and prosperity of old Mother Earth, now all gone to ruin, was something I shall never forget.

I said, "Mr. McCubbin, how is one going to *know* whether apparently good land he is thinking of buying may not some day become worthless?"

"He can not tell positively," he said; "but there are certain indications now known to practical men by which we can determine with a fair degree of certainty

whether the land will continue to be fertile, and free from subsoil alkali."

"But," said I, "how about the land round about Reedley? Is any one practically sure that *that* land, so productive as to grow wheat and alfalfa in perfection, will not in time sweat out the brine beneath, like that which almost borders on it?"

"While we can not be positive," said he, "yet it has remained fertile and productive for a good many years, and will probably continue to be so."

On our long pleasant drive we passed many and many irrigating-ditches—one might almost call them fair-sized rivers. Along their banks would be the beautiful trees, so that one could see the line of the ditches miles and miles away over that level country. These water-ways go right through some of these alkali tracts. I asked Mr. McCubbin whether it would not be possible to reclaim some of that land. He had a theory that certain kinds of trees might be grown in it, and in time bring

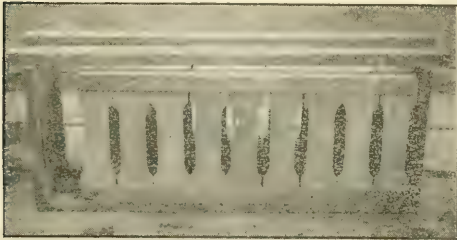


J. F. FLORY'S APIARY UNDER TREES ABOUT TEN YEARS OLD.



the land back to fertility; and he believed that in time, when the country became more populous, some sort of plant life would be found that would grow, and redeem the land. He mentioned in this connection the fact that pear-trees would grow on some alkaline lands where nothing else but the salt-weed and sage would live.

About this time we were nearing Hanford, and coming to the region of the immense pear-orchards — orchards having as much as 120 acres of trees. It was a sight I shall not soon forget—those thousands and thousands of trees blighted almost to death; and then to think the bees were accused of bringing on all this fearful mischief! But I have spoken about the pear-blight situation, and I will not take any space this time to go into the details. We will here dismiss the redoubtable Rambler and our friend J. C. McCubbin.



J. F. FLORY'S SECTION-CASE.

We will now jump clear past the pear-blight regions, and visit our friend J. F. Flory — one whose name is reasonably familiar to our older readers. Mr. Flory was one of the old pioneer bee-keepers who came to California years ago. He made his start with his bees; but now he is more of a fruit-grower than bee-keeper, although he still retains some interest in the bees. At the time of my visit he had 50 acres of fruit; and the year before, he sold \$4500 worth from those orchards. He took 13 tons of dried apricots, 14 tons of dried peaches, 18 tons of raisins, and one ton of prunes, or 46 tons all told. When I saw the quantities of beautiful fruit on the trees yet to be harvested I could not wonder, considering the uncertainty of bee-keeping in California, that Mr. Flory had taken up fruit-growing.

A "tenderfoot" from the East can scarcely conceive the immense business of growing and putting up dried fruits. Dried apricots are delicious; but the fresh ones right from the trees in the cool of the morning are far better. In driving out to Mr. Flory's home we passed some immense vineyards. Some of them were a mile square. I attempted to photograph one of those vineyards, and I reproduce the picture herewith; but—my, oh my! one can get no conception of the immensity of the field from a miserable little photo.

The vines are not trained in trellises as with us in the East; and the culture of the raisin grape is quite different from the growing of ordinary grapes with us. They are cultivated and handled just about as we would cultivate fields of potatoes.

The grapes, when ripe, like other fruit in this portion of California, are set out in wooden trays, and exposed to the direct rays of the sun. So dry is the atmosphere that the fruit is soon dry enough for packing.

As to the possibilities of growing raisin grapes, I may mention one or two extraordinary cases that must not be taken as an average. Mr. Flory drove me by one raisin vineyard of three acres, that, *without one stroke of work put on it*, yielded its owner that year \$1000 in clear money. Another vineyard, with vines only one year old, made a net return of \$50.00 per acre. But these figures are far above the average; but they illustrate the *possibilities* of this land only a few miles, comparatively, from the alkali land of which I have been speaking.

I have said that Mr. Flory was a bee-keeper. I show you his small apiary under some little (?) ten-year-old trees that were anywhere from twenty to thirty inches in diameter. These, I think, were the cottonwood, but they looked very much like a species of willow. These trees will give one a fair idea of how immensely productive this land is.

But let me give you a "pointer" right here. Do not imagine that you can pick out land like this everywhere in California; and do not be deluded by statements of ordinary real-estate sharks. If I were going to California to "invest" I would make some plan whereby I could stay a year or two and study the conditions, without trying to make a "big scoop" in real estate the moment of arriving, with the probability of being "scooped" myself.

Referring to Mr. Flory's bees, he has only a few colonies, as you will see; and while he is one of the pioneers, if not *the* pioneer bee-keeper of this locality, he has sons and sons-in-law who are very extensively engaged in the industry. I will also show in this connection one of Mr. Flory's section-cases, something like our D case for the production of comb honey. Its manner of use will be apparent from the illustration.

#### RAMBLE 208.

#### An Interesting Visit at Mr. Moe's; his Large Crop.

BY RAMBLER.

Soon after my arrival in Cuba, in November, I made an accumulative call upon Mr. Moe. I went out from Havana to Mr. Somerford's 30 kilometers, and accumulated him. Then we wheeled 25 kilometers, and at Artamisa accumulated the two Harrys and Fred Munson; and five of us swept down the calzada 30 kilometers more, and

gave Mr. and Mrs. Moe a sort of surprise party.

Mr. Moe had just commenced extracting honey, and had a few bocoys filled, and several more waiting to be filled. I present you a photo of a few of the unfilled bocoys at the entrance to the extracting-tent. Mr. Moe stands between the bocoys, Somerford to the right, Beaver to the left, and Munson in the rear. I believe Howe was off somewhere reading a magazine, according to a habit of his.

You will note that these bocoys are well calked between the hoops, which shows that they need much cooping before they are ready for honey; and even after the honey is in, there is sometimes quite a leakage. All of this happened at the commencement

it will relieve him of any anxiety about his food and clothing for the coming season.

Mr. and Mrs. Moe both firmly believe in more bees, and now he is planting new apiaries; and by the time this reaches the reader he will have his 1000 colonies.

Another thing that Mr. Moe aims at is to cover completely his field. He has purchased half of a caballeria of land (a caballeria is  $33\frac{1}{2}$  acres), where he will be independent, and have a permanent headquarters. He is led to this from the action of some of the Cuban land-owners. Perhaps they will rent a parcel of land for an apiary for \$20 or \$25 per year. The next year they reason that the bees are there, and a further squeeze is practicable, and the rent increased. It was increased in this man-



HOW BARRELS OF HONEY ARE LOADED ON TRUCKS IN CUBA.

of the honey season. At the writing of this, in May, "the season is passed and the harvest is ended," and from his 600 colonies Mr. Moe has secured 73 bocoys (7300 gallons), or 87,600 lbs.

During the height of the honey-flow Mr. Moe was short of help, and at one time nearly every hive was full and the combs sealed to the bottom. Mr. Moe believes in aiming well up on the mark, and early in the season he had aimed to secure 83 bocoys and a few pounds over, or 100,000 lbs.; and but for this lack of help there is no doubt he would have hit his mark, or been very close to it. As it stands, he has no cause for complaint, and has an excellent showing for his two years' labor—a brand-new apiary of 600 colonies; and, though the net price of honey was close to  $2\frac{1}{2}$  cts. per lb.,

ner on Mr. Moe to the tune of \$100, and he disappointed the rentee by moving his apiary.

Mr. Moe, in common with the rest of the bee-men on this end of the island, is troubled with too much honey in the brood-nest, and this to such an extent as to reduce the colony to a non-producer. I mentioned this matter when writing up Mr. Somerford. Mr. Moe does not indorse the idea that Mr. S. advanced about the black bee, but points with evident pride to several colonies where the strain is the best Italians from best breeders. He has his red-clover strain from the Home of the Honey-bees, and a Hutchinson queen, which, by the way, Mrs. Moe secured by writing an article for the *Review*. I have tried to prevail upon her to do so some more; but Mr. Moe seems to



think the most of his strain from Mr. J. B. Case, of Florida. The Italian clearly has the preference in the Moe apiaries, and I think Mr. Somerford has a strong liking the same way. What he told me about the blacks when I first came here was just his talking.

Another very good feature about this apiary is its brand-new bees and no foul brood. I examined them quite thoroughly with the owners, and found only a tincture of pickled brood, which, in my California experience, disappears in the midst of a honey-harvest, and Mr. Moe assures me that it disappears after requeening with a vigorous Italian strain.

The ten-frame Langstroth hive is used. In one apiary the Cogshall extractor is used; in the other, the Cowan. Both have their excellent points; and if all these could be combined into one it would be near perfection. The Cogshall is the lighter-running, while the Cowan does not break combs.

Mrs. Moe combines the rearing of poultry and bee culture, and had nearly 100 fowls. They had a free run in the apiary, and some of them had developed into bee-catchers. Said hen will steal up to a hive and grab laden bees as they are returning. If the bees show fight the hen runs quickly along the row to a new location, and comes the grab game again. Or they approach the hive from the rear, and carefully reach around in front and pick off the bees. Such self-educated hens were singled out for the pot, and I am assured they were invariably fat and savory.

It is something of a job, as I witnessed, to handle those big bocoyos of honey. Mr. Moe extracts until he gets a carload, or 20



BOCOYS, 100 GALLONS, FOR HONEY.

bocoyos; then the oxen and carreta are called upon to transport the sweetness to the railroad. I herewith present a photo of the method of loading. This operation, in this case, is on level ground. Trenches are dug to allow the big wheels to drop a foot or more. A rope is put around the bocoy, and the head yoke of oxen attached to it, and it is rolled upon the carreta without much fuss. Four bocoyos can be carried upon one carreta, and it makes quite a spectacular appearance on the highway, or, rather, it would if seen in Ohio or New York.

Another photo shows Mr. Moe hiving a swarm of bees out of one of those mango-trees. He uses a light bamboo pole (the bamboo grows here), and a common five-gallon tin can at the end of it; and it is a real handy affair, for I have learned to use it. Mrs. Moe is also an adept in the use of it, and hives many a swarm. But she would hardly try to get the swarms from one of those tall mango-trees.

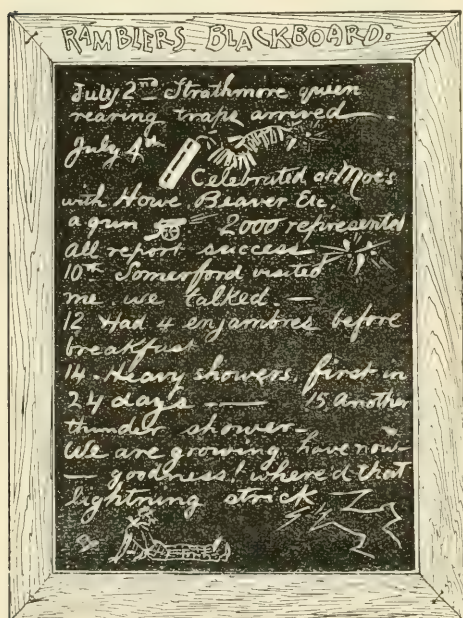
In the interests of a larger bee-keeping, and with a view to establishing more apiaries, Mr. Moe and myself made a little trip to Consolation del Sur, some 30 miles along the railroad. Our observations from the car window as we sped along were good, bad, and indifferent, according to the show of honey flora. Around Consolation del Sur we came to the conclusion that bees might possibly starve. If we had gone 25 miles further



"THE ONLY AMERICANO IN TOWN."

along we would have reached the end of the railroad at Pinar del Rio. I gather from Mr. Brown, of Tulipan, who has been there, that there is but very little inducement for bee-keepers in that quarter, or in the center of this end. All agree, however, that there is plenty of good pasturage all along the coast. All of these towns in this portion of the island are centers for tobacco culture. The best tobacco in the world is grown here, and under the general term of the Vuelta Abajo district. Leaf tobacco of suitable texture and firmness for cigar wrappers commands \$10 per pound. The blossom on the tobacco-plant is yellow, and with a long tube no bee can enter here.

Having made up my mind to try bee-keeping in Cuba, Mr. Moe and I consulted together harmoniously, with the result that I selected Taco Taco, nine miles from Mr. Moe's nearest apiary, as a good point in which to commence operations, and these lines are written in said town; and a little strange, is it not? I am the only "Americano" in town. I will tell you about my fix in a strange country and with a foreign tongue a little later. The day's outing gave Mr. Moe a let-up from his duties. In fact, the bees were not gathering much honey at that time. I find that bee-men are not extracting in Cuba all the time. Cold waves in the States are felt here, and affect the honey-flow.



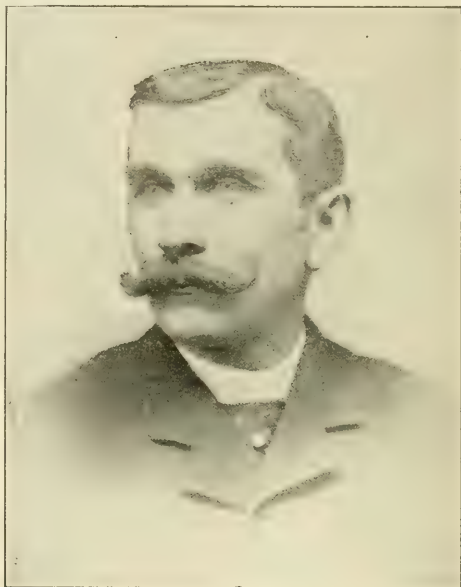
You will observe, from what I have written about Mr. Moe's bee-keeping in this Ramble, that he has really outgrown the Cogshall shoes, and thrown them aside; and while he is grateful for the charm they brought him he now prefers to stand in his own Cuban shoes. Vale the zapatos,

## DOGS TO WATCH SWARMS.

The Sagacity and Usefulness of one Animal; what Dogs to Select, and how Train.

BY H. S. FERRY.

I see in GLEANINGS of July 15, page 612, an item entitled "Dogs to Watch Swarms." Some one asks if there has ever been a dog trained to watch swarms, and notify of same. Inclosed I send you a photograph of a dog, kennel, and apiary, and take pleasure in telling how useful he is in swarming



H. S. FERRY.

time. This dog is half Newfoundland and half St. Bernard, both thoroughbred. The kennel has a four-light window, where he can see the apiary; and if there is any thing unusual going on in the apiary he is sure to notify us. If there should be a swarm or an extra buzzing in the apiary, he is sure to call some of us before they alight or leave the yard. I never have had a swarm of bees leave the yard as long as this dog has been in charge. He weighs 150 lbs., has a good disposition, and understands the nature of the bees as well as any dumb creature can, and much better than some human beings. He will go among the bees. They do not seem to meddle with him. He is not afraid of them, and is kind to his owners and those who take care of him, but is proof against intruders. So far as value is concerned, he is beyond price. Money would not buy him. You will notice how much we think of him and appreciate him, by the expense that I have been to to build him his home, which is carpeted, painted, slated, and elevated, so that it



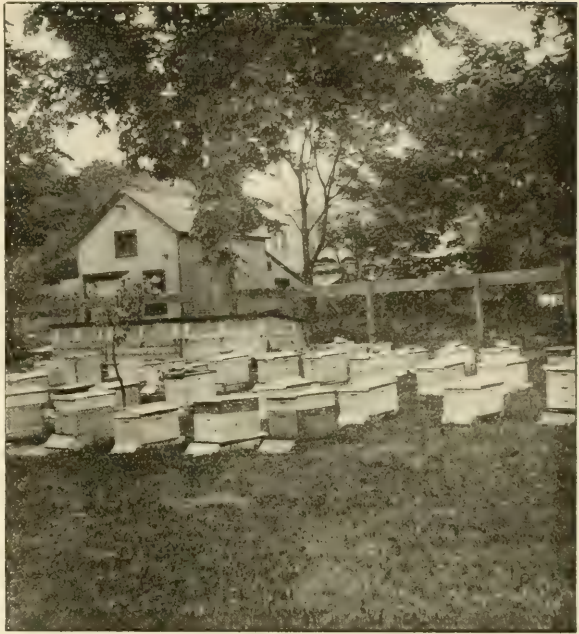
drains from all sides, making him a very nice home.

There is a walk leading from the rear of the house, flagged to his kennel. I send you a picture of our residence. It is a 14-room house, standing on a corner, surrounded by lawns and shaded trees. I also send you a photograph of a part of one of my apiaries. The hives are dovetailed, standing on stands, similar to your style *H* bee-stands, and these stands are set on flagged stones, so there is no opportunity of grass growing up to interfere with the flight of the bees. The surroundings are mowed by a lawn-mower each week, and the bees appreciate it highly.

Mount Vernon, N. Y.

[Desiring further information I wrote to Mr. Ferry again, and he replies:]

You say, "There is one thing you have not told us; and that is, how you manage to train the dog to report swarms." In the first place, you must have an intelligent dog. There are some dogs that are as dumb as



APIARY PRESIDED OVER BY A DOG.



THE DOG THAT IS TRAINED TO WATCH SWARMS.

some men, and there are others as bright as some men. This particular dog we consider very intelligent, and if he had the advantage of speech we should consider him quite human.

The first instance we have had of his being interested in notifying of swarms was when he had been in company with those who work with bees. A swarm came out at the opposite end of the yard, making an unusual noise. He began to bark. This, of course, attracted our attention. We immediately prepared to receive the swarm as soon as it alighted, and I think his barking and continually running around the yard caused them to alight much quicker and much nearer than they would otherwise. We began to encourage him by talking to him, and he continued to bark. This led us to believe that he could be taught to notify us when there was any unusual noise made by the bees. With a little care and attention, an intelligent dog can be taught almost any thing.

Since the above instance we have taken some pains to have him around the bees; and, if there was any prospect of hav-

ing swarms, we let him see them and encourage him to bark, by a little attention on our part, until it has become a habit with him, through our actions and movements.

His kennel is near the bee-yard; and if there is a swarm issuing he is the first one to discover it, and he begins to bark, making a great disturbance, which calls our attention.

You say if bees swarm the year round it might be an easy matter to teach him the trick. That would make no difference. The same might mean that a good watchdog is not practical unless he had burglars often.

I have found that dogs with very little training and kind usage, where they have confidence in their master, can be made very valuable to the human race in a great many ways.

H. S. FERRY.

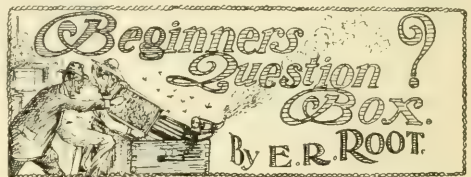
[All of what Mr. Ferry says is very interesting to me, as lately I have been studying dogs, and I find there is more to them that is teachable than I supposed. We have an intelligent pug dog that seems to understand some things we tell him, and at other times he tries to communicate, but it is in dog fashion, of course. Sometimes he will wish us to do something or go somewhere, and it is really comical to see him try to make us understand, and he does. He will look wistfully, bark and howl. If we do not pay any attention to him he will grab our clothing, and pull and tug until he leads us to the place or in the direction that suggests what he wants. Notwithstanding this dog is very intelligent I found it a little difficult to make him do what I wanted him to do until I began to make use of a little switch, notwithstanding he *knew* well enough what I asked. By a little coaxing, and sometimes administering a little punishment, I got him so that, when I gave him certain orders, he would mind just as nicely as a well-trained child.

Mr. Ferry says very truly that there are some dogs as dumb as some men, and that there are others that are as bright as some men. By taking an intelligent dog, and the right course, one can teach him to be very valuable. Neighbor H. told me how one of his dogs in years gone by would go for any particular cow he called for, and how that same dog, when two herds were mixed, would separate his cows from those of his neighbor; that he could sit in the house, and when the time arrived he would say in an ordinary tone of voice, "Punk, it is about time for you to go and get the cows," and up he would start. When Mr. H. was ready his cows would be ready for him at the usual milking-place; and he (the dog) had trained those cows so they knew they must wait until they were milked. Once in a while a young heifer would sneak off; and the way the dog would punish her for her infraction of "orders" was truly comical. He would grab the cow by the tail, and pinch and bite until she learned that he was boss, and she had got to be milked before she could go away.

I might go on and tell incident after incident, as many of our readers could do, of how dogs can be trained. But the case Mr. Ferry mentions is the first one I ever knew of a dog that could be trained to watch *bees*. The swarming season is so short that I could not understand how any man could instruct his dog in so short a time what he wanted of him.

I suggest that Mr. Ferry take the dog to a good photographer, and get a good portrait photo of his head. We should like to look into his open countenance and his big eyes, for a dog that will watch swarms, and report them, as this dog does, should be accorded the honor of an introduction.

If it is possible to train a dog to watch swarms there are those in our ranks who have intelligent animals that could be taught to perform a very valuable service in the apiary. But the average dog soon learns by experience that the bee is something to be *avoided* rather than to be watched and to be considered with special care.—Ed.]



J. W. L., Ohio.—As I have before explained, in the case of brushed swarms the colony with nothing in it but brood will not suffer during the times that such colonies are brushed or "shook," for the weather will be warm and the hatching brood will emerge in time to take care of the unsealed brood.

A. C., Wis.—I regret to inform you that you are on the wrong side of the argument. While it is true that bees lie dormant, yet if they were frozen they would not come to again. You can easily prove the matter by making the experiment yourself in cold weather. Bees may become chilled so as to be apparently lifeless, and when warmed up will be as lively as ever; but if they are actually frozen solid you never could expect them to come to life.

J. W. S., Tenn.—The best time of the year to transfer is in the spring when the weather is warm and the bees are taking their first flight on apple bloom. A very good time is in the fall when the amount of honey in the combs is scant, and the bees are working on some source for honey. If the bees are inclined to rob at any time that is just the very time that you should not transfer, but you can do so at any time by using the Heddon short method. For particulars see Transferring, in A B C, and the brief digest of the method given on page 32 of the catalog we are sending you. By this plan you can transfer at any time.





SELLING HONEY; BLOOD WILL TELL; THE PERFORMANCE OF THE RED-CLOVER STOCK WITH LONG TONGUES.

*Friend Ernest:*—I want to tell you how I sell honey. As you know, at Buffalo I said I felt sorry for a bee-keeper who could not sell his honey. I formerly peddled it and sold it almost any way ever heard of, but do not find it necessary to sell in this way now. I will not leave my honey at stores to be sold and then paid for. I sell it for cash, and then the storekeeper will sell it, as it is his, and he will wish to get his money back. I think this plan works much better than leaving around at different stores to be paid for when sold. When selling the honey I always say to the party buying, that, if he finds a box that is not what it is represented to be, put it back in the crate and I will pay the money back. I have sold tons of honey on this plan, and never took a box of honey back. I think it wrong the way some bee-keepers grade their honey. I do not believe in facing honey. Sell it for what it is, and do not try to sell it for Fancy if it is almost all No. 1, for the few boxes of Fancy will not hurt your No. 1. The beauty of it is, I never produced enough to supply the demand.

This has been one of the queerest seasons I ever saw. We had "Doolittle weather" up to the 28th of June. I was feeding the first of June. There was lots of clover, and it yielded well; but the bees did not have a chance to get it. It snowed here the 28th of June, and then we got a few days of warm weather, then cold and hot. Bees swarmed when it rained. I never saw any thing like it. I had 70 colonies of those red-clover or long-tongued bees. You see I had bought 30 queens before Doolittle had got that red flag out. They are almost all from daughters of your old queen. I got that one from you and the rest came from L. H. Robey and J. P. Moore. I raised some 30 myself, so you see my yard is nearly all that long-tongue variety. I can not yet tell you just how much honey I will get, but will have over four tons of as fine clover honey as you could wish for. It may seem like boasting, but I think I have done well considering the season. My best colony has produced 192 boxes, and is working in another super which I think they will finish up, as they are well started in them. I will report my crop later. You will see by this I have not been disappointed in buying queens as Dr. Gallup has. These bees worked on red clover when white clover was most abundant. There are some black bees kept just across the road, and their best

colony has made 42 boxes up to date, so you will see it is not merely location. When I get time I will tell you how I managed to get this crop if you wish me to.

GEORGE B. HOWE.

Black River, N. Y., Aug. 8.

WHAT TO DO IN SWARMING TIME WITHOUT FRAMES OR FOUNDATION; THE DELICIOUS SWEETNESS OF NEW HONEY.

An experience of mine may prove of interest to you. For the lack of frames that had been sent for but had not yet come, I was compelled to dispose of two good strong swarms by putting them in hives with only two or three frames of old combs, the remainder of the space being left empty, the intention being to fill up with frames of foundation as soon as my supply came to hand. But the supply was so long in coming that this intention could not be carried out. In both cases new comb was built, hanging from the under surface of the cover, and in one the larger portion of the comb so built had become detached and had fallen down on the bottom-board. What ought I to have done? What would you do in such a case? I will tell you what I did. Having received my supply of frames I got two more hives ready, each with its full quota of frames filled with foundation. One of these I put on the top of the hive in which there was that mess of soft new comb on the bottom-board; having, of course, taken the cover off first, and the other I used in the second case in the same way except that I placed it underneath instead of on top. As the matter now stands, what will the bees do? and what shall I do? Can you tell me? At present both are quietly at work.

W. O. EASTWOOD.

[You possibly did the very best that could have been done under the circumstances, although I might have done this: As soon as I came in possession of the frames of foundation I would have taken a thin-bladed knife, reached down and cut under those beautiful combs that were all mashed down in a heap on the bottom-board, and put them on a dinner-plate. Of course, if the combs have any brood in them they ought to be fastened in frames temporarily—at least till the brood hatches out. After cutting out all the bunches of comb containing honey, and placing them on a plate, I would have put the frames of foundation in a brood-nest, alternating them with the frames of brood already in the hive.]

As to the chunk honey, there is nothing a neighbor likes better than a plate of *new* honey uncapped. The very newness of it imparts to it a flavor that I think is very fine. I like a little of it, especially when it is in "white flaky" combs that Mr. Hutchinson tells about. Often do I pick up one of these chunks, lift my veil, and bite into the honey as I would into a piece of watermelon. Talk about delicious sweetness! there is nothing any better, if one is a little tired and hungry.—ED.]

## NEBRASKA AS A HONEY STATE.

Will you please ask Dr. Gandy and others to save you a lot of catnip seed? I have tried for years to find it, and failed. This wet season will develop the seed finely. My early sweet clover is coming up thick from seed dropped this month; so we shall have it in bloom next season again. Mr. T. R. DeLong, of Angus, Neb., had an average of 250 lbs. per colony, one season, from fall flow—heartsease. When we can have *catnip* and *sweet clover* in abundance, what country can beat Nebraska and Iowa in yield of honey? Bees were never doing better at this time of year than now; but there are only a few left in the country.

Hebron, Neb., July 23. F. KINGSLEY.

## GETTING BEES OUT OF THE SIDE OF A BUILDING.

The enclosed clipping may be of some interest to you. I will make a few corrections in the paper's report, which you can use as you see fit.

1. There was a large number of bees, I should say in all a bushel. The swarm which I took from the outside filled the body of a Dovetailed hive without any frames.

2. I obtained, in all, bees enough to make three large colonies, besides a large amount of brood.

M. W. ROYAL.

Gardiner, Maine, July 17.

[The clipping referred to reads as follows:]

## HONEY-BEES AT THE HIGH SCHOOL.

Thursday forenoon Principal Powers, of the high school, noticed a swarm of bees busily working in the cone of one of the lutherian windows in the roof of the building, and, obtaining the assistance of Maurice Royal, who is considered to be quite an apiarist, proceeded to capture the swarm. They succeeded in obtaining those on the outside, and, discovering that others were in the building, took off the plastering and cut through the boarding, where they discovered what at the time seemed to be millions (!), and which, with those on the outside, would make three large colonies. A colony would more than fill a peck measure. When they removed the boarding they evidently disturbed the hive, for a stream of honey began running through the cracks, and dropped to the window-sill in the schoolroom. Pails were quickly obtained in which the valuable sweetness was gathered, amounting, with that which was taken from between the walls, to more than what would fill two good-sized wash-tubs.

These bees are known to have first made their abode in this building about six years ago, and Principal Powers has watched them each year in their movements, but had no idea they were of such large numbers. Two colonies have been secured and taken to Mr. Powers' house, where he will give them his attention. (2) Another colony is still in the building, which Mr. Royal is trying to obtain, and which he probably will during the day. The entire prize collection would amount to a money value of about \$15. Swarms are not valued so highly at this season of the year as they would be in May or June.

Principal Powers was so much interested in the work of securing the bees, and then to investigating their mode of living and working, that he received a number of gentle reminders from the bees to let them alone.

AMERICAN BEE-KEEPERS' ASSOCIATION  
BADGE.

Allow me to suggest that, instead of a button with a queen-bee, and the initials of the Association, as has been suggested, the badge have the portrait of father Langstroth, with the words over it: *Si monumen-*

*tum quæris, circumspice* (if you seek his monument, look around), and below the portrait the initials of the Association. Have the badge made so it can be buttoned into the lapel of the coat. As the badge is not apt to be worn at any other time than at Association meetings, it should be cheap. The photographers now furnish photo-buttons very cheap, and they are both neat and serviceable.

E. H. SCHAEFFLE.

Murphys, Cal.

[Your idea is a good one; but the average person is not able to read Latin. Why not put it in plain English? While I have spent six years in studying Latin, in school and college, my own experience teaches me that any good sentiment ought to be put in English or the common vernacular of the people. The Board of Directors will probably consider several forms of badges in the shape of buttons, and yours may be included in the list.—Ed.]

## HOW THE OLD BEES "HAD TO WALK THE FLOOR."

I read the A B C and GLEANINGS; but there is one thing that you have not put in that ought to be there. Put it in at once or you will have lots of enemies in the cucumber district. My bees are very gentle. I go out every morning and pull the roof off their house, and watch them poke the honey into the comb. But this morning I went out as usual, and about a dozen fell on my hand point first, and stuck. I was troubled, but at last my wife explained it to me. The bees had, the day before, carried a lot of pollen from the cucumbers, and fed it to the baby bees. Of course, this gave them the colic, and the old bees had to walk the bottom-board all night. No wonder they were cross. Moral.—Always raise catnip with cucumbers. JAY SMITH.

Vincennes, Ind., June 20.

[Dr. Gandy has already spoken of the value of catnip as a honey-plant, in last issue; but I do not suppose it occurred to him, even if he is a physician, that it might relieve them of the colic.—Ed.]

## BEE-POISON; ITS PECULIAR EFFECT ON ANOTHER INDIVIDUAL.

I notice on page 614 of GLEANINGS that mention is made of bee-poisoning by Mr. J. H. Gray. I have been affected in a very similar manner myself a great many times. Almost always after working with the bees I have what one would think to be a bad cold in the head, but with no other symptoms except a dull headache, or, rather, a dull feeling in the head amounting almost to a headache at times. I think it also affects my eyes, but can not say whether it is the poison alone or that and the smoke from the smoker. I think it is the poison principally, as smoke alone on other occasions does not so affect my eyes. I have for several years observed this, and think it is surely caused by bee-poisoning and



not by something else and mistaken for that. It also affects my head in a similar manner when at work scraping sections, only more so by considerable. I had thought it was the powdered propolis inhaled while scraping sections which affected me. Surely it can not be from the same as that by which one is affected when working over the open hive.

Earlier in my bee-keeping experience it was all blamed on the smoker. I was evidently mistaken, as smoke alone at other times does not so affect me. So seriously has it affected me, my eyes in particular, that I have contemplated engaging in other business. I guess that black brood will help me out all right without any necessity of my quitting the business.

I have also noticed that bee-stings affect me. I have a great many times felt a prickly sensation in various parts of my body after being severely stung, or after having been stung for several days in succession.

I do not mention these things thinking that my health has been injured, but simply to call attention to the way in which it affects some people. It is probable that it affects but few people thus. Although these things are not injurious to one's health they are disagreeable while they last.

Annin creek, Pa., July 24.

#### THE WILLIS QUEEN-CLIPPING DEVICE.

In June 1st GLEANINGS you ask for experience with the Willis queen-clipping device. I made and used one as soon as I saw the illustration, and consider it the best thing ever invented for the purpose. There is absolutely no danger of hurting the queen, and I think I can clip one quicker than any one can in any other way. It does not scare the queen, and when the rubber is removed they walk away as if nothing had happened to them.

E. E. LAWRENCE.

Stanbury, Mo., July 10.

#### HOW TO GET HONEY OUT OF A CAP.

We had a swarm of bees and put them into a hive without the super on, and they went into the cap and nearly filled it in 21 days. Can you tell me how to get them out into the lower box? Would it be better to change them now or wait until spring? It is one of Dadant's hives that they are in.

JOHN J. BUREN.

Cullom, Ill., Aug. 7.

[The only way to get the cap off the hive is to pry it up a little and blow in around the edges between hive and cap a plentiful supply of smoke, then with a long knife sever the comb attachments by running knife around the cap, and lift it off. If the cap is then turned upside down, and another cap put over it, by drumming on the lower cap you will drive most of the bees upward, leaving the combs almost entirely free of bees. The honey could then be used for chunk honey.—Ed.]

#### SECTIONS BY THE PIECE OR BY THE POUND.

When selling comb honey is it customary to weigh it up or sell a section for a pound?

J. J. KIRKMAN.

Delta, Ohio, Aug. 5, 1902.

[A good deal depends on the location. In many places in the East, sections are sold by the section or by the piece or by the box; but when sold thus it is usually customary to have the boxes average the same in weight. In the majority of localities in the United States, comb honey is sold by the pound.—Ed.]

#### DOOLITTLE CELL CUPS IN UPPER STORIES; FERTILE WORKERS.

I have had some trouble in getting the bees to accept Doolittle cell cups in upper stories above excluders, and have made a colony queenless, calculating to cut out the cells started just before they seal them, and use the jelly in artificial cups. Should they be given at once after removing all natural cells, or would it be better to wait a day or so? Is it a common thing for fertile workers to develop in upper stories of strong colonies, with a good queen below?

North Kingsville, O., July 30.

H. E. CROWTHER.

[It is sometimes difficult to get the bees to accept cell cups in the upper stories of strong colonies. If they fail to take hold of them, feed them about half a pint of sugar syrup daily. We usually consider it advisable, if we do not have what we call colonies with queens which the bees are trying to supersede, to place the cell cups in cell cups that are queenless.

In the case you mention, it would be best to give the new cell cups to the colony at once, after destroying those built naturally by the bees.

It is very unusual—indeed, we never knew of a case of fertile workers developing in an upper story of a strong colony where there was a good queen below.—Ed.]

#### BEE-STINGS AND RHEUMATISM.

*Mr. Root:*—A remarkable cure of rheumatism was effected in this neighborhood, as you will see by the inclosed clipping. It would probably be interesting to some of your readers.

F. M. MAYBERRY.

Obelisk, Pa., Aug. 12.

William Snively, an aged resident of Shady Grove, Pa., has been a sufferer from rheumatism for a long time, and lost the use of his arms. When in the garden men were hivng a swarm of bees, and they settled on the old man and stung him sorely. When the swelling from the stings disappeared the rheumatic pains and the stiffness left, and the old man can now do as much work as before he was afflicted.

[We have had similar reports, and I think it is probable that there are certain kinds of rheumatism and certain individuals that a large number of stings would affect and almost instantly cure; but a good many think the cure worse than the disease. The majority of rheumatic people say and have said that stings never give them any relief.—Ed.]

## CROP REPORTS BASED ON UNCERTAINTY.

*Mr. Root*.—I think your suggestion in regard to having bee-keepers write you concerning prospects of honey crop is good, but it is in so crude a state yet I don't see how you are going to form much of an idea after all. I hope it can be managed so as to be of some benefit to us all; but I might write you to-day that bees are doing splendidly (which they are), and by to-morrow the weather may be altogether different, and bees doing nothing. I will help the matter along if it can be gotten in proper shape, and I would sanction all other ideas toward better conditions as to handling each year's honey crop.

I had 100 hive-bodies of Salisbury this season that provoked me many times. When I wanted to change almost any of the old-style (six or eight years ago) brood-frames to these new hives I had to cut the end of the top-bar off before they would go in. You know how it makes one feel to be bothered so when he is in a great hurry, as all up-to-date bee-keepers are, and the same old frames are some of your make too.

AARON SNYDER.

Kingston, N. Y., July 20.

[In reference to crop reports, I appreciate the fact that it is not possible for one to tell exactly what the conditions will be with him so far as honey is concerned. If one will only tell what the present outlook is, or the outlook *at the time he writes*, I can formulate an answer based on even uncertainty. You will note that my crop reports are not positive, but they give the indications just as they are at the hour of going to press, and indications based on uncertainty are more or less valuable.]

With regard to the hives and the brood-frames, I am aware that the new-style frames won't go in the old-style hives; but we very rarely have any complaint or trouble from that source, because it is now nearly fifteen years since we made those long hives. We shortened up the hives because the bees built comb back of the end-bars. The space used to be  $\frac{3}{8}$  inch, but now it is  $\frac{1}{4}$ ; and since that time we do not remember that we have received any complaint about bees building burr comb behind the end-bars. We think we did a wise thing in shortening the hive to avoid the trouble referred to, because we are thereby benefiting all future generations, and all who have begun to keep bees since fifteen years ago. But old hives can be made to take new frames very readily by nailing a piece of separator stuff about  $\frac{1}{8}$  inch thick, one inch wide, on a level with the rabbet. We are using a lot of our old chaff hives, and have no trouble from the use of the new frames. As to the old frames going in the new hives, we remedy that by cutting off the top-bars a little at each end. Of course, this means a lot of work; but one day's time through the apiary will fix that whole trouble. I know it is rather annoying; but when we come to consider the greatest good

to the greatest number we sometimes have to make inconvenience for the few.—ED.]

## WHY THE BEES BALLED THE QUEEN.

Will you please tell me why the bees balled the queen? I sold a swarm of bees to a neighbor. It being an after-swarm, the queen was not clipped. They went to work in fine shape, had about filled one super, and I went around to put on the second super. While I was there I took the queen out and clipped her. Upon returning her to the bees they immediately balled her. I took her away from the ball; but while she was still in my hand an angry bee managed to get to her and sting her. I was very sorry, for she was a fine queen, and her bees were very yellow, and fine workers. I was doubly sorry, because I had sold them to a near neighbor who was taking a great deal of pride in them. I have practiced clipping my queens for two years, and never lost one that way before.

Wakenda, Mo., July 26. W. T. CARY.

Is it a good plan to clip the wings of the queens? The last one the bees objected to, and balled her. I rescued her, and in putting her in the cage she flew off and stayed over an hour. When she came back I captured her and began again, with success, as she is laying nicely.

Would it be safe to use supers that have been on hives in which there has been foul brood? You say the hives are safe, so I thought the supers might be, as there is no honey in them—only foundation.

Is it not a good plan to feed? Several old bee-keepers say it is wrong; but as there is foul brood in the vicinity it seems to me it would prevent robbing, and lessen the liability of catching the same.

FRANKLIN R. DAVIS.

Stanfordville, N. Y., July 25.

[I have placed these two letters together to show that sometimes bees will ball a queen that has just been clipped. Just why they will do this I can not explain, except that there are times when they feel a little ugly or "out of sorts." The handling of the queen during the act of clipping may give her a different scent; and if one, two, or three bees happen to feel displeased and show hostility toward her, there is quite a strong probability that other bees will join in the attack. When they attempt to ball her they will keep it up. In such case I would cage the queen in a cage having a hole filled with candy, and let the bees release her themselves, after she has reacquired the scent of the hive and of the colony. Sometimes closing up the hive with a balled queen will result in the bees letting her alone, but it is risky to do it.]

In answer to the second question of Mr. Davis, I would say for my part at least I would not use supers that have been used over foul-broody hives. The probabilities are they will do no harm, but one will be



taking great risks. There have been too many reports of disease starting up after colonies have been put into hives that have not been disinfected to warrant the general practice of using either hives or supers that have been in contact with a colony that has had foul brood. While I think that, in the majority of cases, no foul brood will be transmitted to the new colony from such hives or supers, yet one is always taking a risk—a risk that he can not afford to take when means of disinfection are so simple.

The question as to whether it is a good plan to feed or not depends on conditions. If there is foul brood in the apiary, and bees are inclined to rob, I certainly *would not feed* unless the bees are starving, and then only nights; for feeding is apt to stimulate a robbing propensity.—ED.]

#### DR. GANDY'S BIG HIVE.

I was much interested in Dr. Gandy's account of his big hives and methods, but I can't see how there is so much advantage in that five-story hive, for he got only about 500 lbs. of honey, and would he not have had more if the five hives were separate, with supers on top, each having a queen? As it was he got only about 100 lbs. per hive, and probably not in as good condition.

Do you think it advisable to put extra brood-chambers on this time of year? or would the bees now raised from eggs laid at this time eat their heads off? I do not seem able to find much in the ABC book bearing on the subject of big swarms, and should be glad of a few suggestions.

I hope you will visit Dr. Gandy, as suggested, and write up for GLEANINGS *fully* his methods.

I fail to see the advantage in big hives unless you have big pasture holding on till late in the season. Is that not the whole secret of Gandy's success, together, perhaps, with plenty of bees to gather the honey?

H. V. MILLER.

Worthington, Minn., July 21.

[According to my experience the large colonies gather more honey in *proportion* to their size than the small ones; that is to say, if we break up a big colony the several parts thereof will not gather an amount equal to what they would have done if they had been all together. Of course, there is a possibility of carrying these matters to extremes. I have never advised *every one* to use double-decker colonies, for I have always said that much would depend on the locality and the man.

I certainly would not have put on an extra set of brood-frames to increase the size of the colony unless there was a probability of at least two or three weeks' honey-flow some time ahead. The giving of an upper story just before the honey-flow will do no particular good. If given at all it should be given when the bees are crowded for room, and early enough so that the brood reared in it will be hatched out into bees of the right age to gather honey at the begin-

ning or the middle of the honey-flow. The time to make big colonies is at least a month before the swarming season. It has been my practice just on the verge of the swarming season to contract when running for comb honey, in order to get a large force of bees in the supers. When running for extracted I let them have all their room.—ED.]

I got an average of 30 lbs. to the colony; but most of it they gathered with overcoats and gloves on, all in fine condition now. Season is over. I am 14 miles east of Columbus, on National Pike.

FRANK MCGLADE.

Wagram, O., July 24.

#### A BURLESQUE ON THE COMB-HONEY MACHINE.

BY D. L. SCOTT.

A new machine's invented now that works as slick as grease;  
'Twill make the little honey-bee his busy buzzing cease.

With paraffine and glucose and this machine, they say,  
They're making nice comb honey for market every day.

It seems to me this can not be an easy thing to do;  
But th' paper tells about it, and I guess it must be true.

They jest bile down the paraffine and run it in a mold,  
And shake it down and fill it up, as much as it will hold.

And cool it off—jest like my wife makes waffles here at home;

And when they take it out the molds—why, it is honey-comb!

I'd think the stuff would be so soft that it would break in two;  
But I saw it in the paper, so I reckon it is true!

They mix a mess of glucose up and cook it on the stove.

And stir vanilla flavor in, or cinnamon or clove.

This glucose mixture then they take and fill the combs up full,

And cap it over neat and slick, just like the whitest wool.

They stick it fast to sections jest as the bees would do,

At least the paper says so, and it's more than likely true.

I've noticed one peculiar thing about this new machine;

That no two combs are just alike of all that I have seen;

And even, too, the cappings are unlike in shape and size.

And that's not like machine-made goods to my unlearned eyes.

The thing somehow looks mighty queer to me the whole way through;

And, though the paper tells it, I don't think it is true.

I bought some of this honey once, and took it with me home.

And got nice fragrant beeswax when I rendered out the comb.

It's funny, too, that those who write these "items" for the press

Are apt to talk of "king bees" and of "bee-bread" more or less;

And since I'm sure the yarn's a lie, I know just what to do:

I'll write and tell the editor the story isn't true.

TATTS, PENN.



The Lord is my shepherd; I shall not want.—PSALM 23:1.

He who claims the implied promise in the first verse of this justly celebrated psalm, at the time he does so takes upon himself a *responsibility*. He declares himself one of the flock; and David's faith that he will have no "lack," or shall not suffer for want of any thing, is based on the assumption that his "wants" are going to be simple and reasonable. Nowadays it is said there are people who "want the whole earth." Such people will never be enrolled among the flock of the good Shepherd, and, of course, do not expect to be comforted by any of these precious promises. My impression is, David wrote these beautiful words before he had been dazzled by a king's palace, and most *certainly* before he had gone so far in sin as to "want" another man's wife when he had one of his own. We all know that people who have most of what this world can furnish are by no means the happiest ones. Solomon with all his wealth and wisdom (and *wives*) was far from being a happy man; and history has repeated itself all the way down to the present day. The one who makes this little prayer (I like to call the 23d Psalm a prayer) his own, and who is *satisfied* because his wants are *all* supplied, must be in an attitude to be happy and satisfied with what God sees fit to give him.

The next verse speaks of "green pastures" and "still waters." How many at the present day would be content with such a life, more than perhaps a day or two in summer time, for a change? It is not only millions the restless throng clamor for, but *more* millions. People make slaves of themselves, go crazy, and die. They barter health, reputation, and life itself, and yet the millions do not bring happiness to the few who get them—certainly not *such* happiness as is expressed in this brief little psalm of only six verses.

I am almost ashamed to tell of it, it was such a simple thing that brought this text to my mind. I shall have to confess, first, that even this "cabin in the woods" has not given me, all the time, such perfect health as I may have led you to suppose—at least I began to think it didn't; but perhaps it was my own fault, and not that of the "cabin."

Along in July my digestion got bad again; and had I been in Ohio I fear I should have said those old malarial chills were hanging about me again. I told Mrs. Root I feared I should have to go back to "pills," although I had taken no physic for almost a year. She advised trying a change of diet first, for we are both trying to find a way of "doctoring without medicine," and before night I found some "med-

icine" furnished by God's own hand, and coming direct *from* his hand. Owing to our excessive rains the wild red raspberries are all through the woods, and more plentiful than they have been for years. In fact, you can not go in any direction from our cabin without running into them. Everybody is so busy with the abundant harvests that Mrs. Root and I seem to be the only people who can take time to "go berrying." I had tried them at meal time, with sugar and cream, but they didn't seem to "agree with me." I decided to try them "out of hand," right from the bushes, just as I did when a boy. They just seemed to "hit the spot," and no bad effects followed at all. Then I began to eat them at all hours of the day, and I ate so many I hardly wanted any thing else when meal time came. I am happy and well, just on the "raspberry cure." Every day I am having a big "playspell" rambling through our "woods," and gathering berries.

Well, it was this experience that brought to my mind the text, "The Lord is my shepherd; I shall not want." You know how much I have prayed over this matter of remedies, etc. The Lord will and does supply not only daily food, but food that will correct our ill health is spread, like the manna of olden time, all about us if we but reach forth and take it.

There are several varieties of red raspberries about here, and many of them are but little inferior to the cultivated ones. I have some very choice tame ones in our ravine garden, so as to compare them. The bushes in the woods are so full, and they are now so dead ripe, that you can hardly touch a bush without hearing the luscious fruit drop off and rattle on the leafy carpet below. The wild ones have an advantage we can hardly give our tame ones, however. One evening Mrs. Root had her sewing and easy-chair out on the lawn. I strayed away perhaps three or four rods, and, standing on the log fence, I reached for some of my favorite berries. Over the fence was a steep ravine full of dead trees and brush, but I did not suppose the ground was very far below. The rotten log crumbled, and I went down headlong into the brush and debris. Although we are having quite a dry spell now, when my hands got to the ground ten or twelve feet below, I found it damp and almost swampy. The berry-canecan had grown clear up through to the sunlight, and no wonder the fruit was large and luscious. I presume tame berries *could* be started in such a place: if so, we needn't fear dry weather. It is right on T. B. Terry's plan of growing all bush berries under a heavy covering or mulching of straw.\*

\* There has been an impression, quite general, that seeds of berries have something to do with the cause of appendicitis, so prevalent of late. I have just talked with an able physician in regard to it, and he says the best authority at the present time thinks this a mistake, and that, on the contrary, these berries with so many seeds are just what humanity needs about the



Raspberries are not the *only* delicious and healthful food that the "good Shepherd" provides, almost without any care on our part. I told you about our two hives of bees. It took me twenty minutes to make the new colony and put them into the new hive. It does not seem to me I have given them any time at all since then, except to take off the honey. We have taken off over twenty full sections, and there are more than as many almost ready to come off. The honey is raspberry and white clover. After basswood blossomed (almost a month later than it does in Ohio) it gave the honey what I called a cinnamon flavor; and even if I have several times called certain samples the "finest I ever tasted," I say *now* that from our own hives, close by "the cabin in the woods," is ahead of all. I may change my mind again; but my last verdict is that not even Hilbert's maple molasses can "take the cake" from the clover-raspberry-linden honey. This one hive has already given us honey that would sell for three or four dollars, and that, too, as readily as butter and eggs.

Now, I might go on and tell of our potatoes, peas, sweet corn, beans, and things without number, that cost so *very* little to grow on this fertile soil (and I presume there are thousands of localities just as good), and all these chances the Lord has given to all his children. If one's wants are simple, and not many, we need not work so very hard to have them all supplied.

A young couple belonging to my Sunday-school class called at our cabin a few days ago. The young man said, just before he left, that he would just like to have a small piece of land and fix it up as I have done, right here in the dense woods. And, by the way, *he* helped me make my first clearing here. On each side of the walk to the front door we have a bed of sweet peas and one of pansies. The former were sent by Burpee to test. The latter were presented by our neighbor Cole, the man who grows peaches so successfully. Well, it has taken only a very little work to get these beautiful flowers, and yet they have given us just *busheles* of the loveliest flowers I ever saw *anywhere*.

In spite of all these wonderful opportunities there are people around here, as well as everywhere else, I suppose, who complain they "can't make a living," and who have no word of thanksgiving and praise on their tongues or in their hearts to the great Father above for all these gifts, and for the possibilities that lie before us all. "No

time of year they begin to ripen. Of course, one should take any change of food a little at a time at first; but when one finds no bad results follow I feel sure there is benefit in using the new fruit quite freely. To be sure I am on safe ground I have twice tried the effect of what might be called eating the *berries to excess*; but I slept better than usual after it, and no bad result followed at all. If you are ailing, try my "raspberry cure;" and if you can't find the "medicine" where you live, "without money and without price," come over to our woods and help yourself.

good thing will he withhold from them that love him."

## Humbugs and Swindles.

THE GOOD TIME COMING—ANOTHER EVIDENCE OF IT.

We copy the following from the *Cleveland News and Herald* of July 16:

QUIT BUSINESS OR LEAVE CITY; POLICE SEND THIS ORDER TO CLAIRVOYANTS AND FORTUNE-TELLERS.

A mysterious rustling and bustling may be noticed in different quarters of the city. Wigs, skulls, and cross-bones, incense, fantastic robes, and mystical books can now be had at a discount, and many of them have been relegated to ashpiles. An exodus of "professors" and "madames" of clairvoyancy has begun.

The reason for all this is that Captain of Detectives Kohler has given notice that all clairvoyants and fortune-tellers must either quit the business in which they are engaged or leave the city. He has warned them that, unless they have ceased the practice or have left the city within twenty-four hours, they will be liable to arrest. As a result three noted "professors" have left the city already.

"Can't I stay here for three days until I make up my expenses?" asked one indignant "professor" when served with the notice. "I just came here, and haven't made a cent yet."

"You will be served just like the others," said Captain Kohler. The "professor" decided to move.

For some time it has been thought that there was no law to prevent clairvoyants and fortune-tellers from doing business. Many complaints which have been made to the police recently have caused Captain Kohler to investigate. After consulting with a number of lawyers it was found that section 7017, subsection 4, of the Revised Statutes of Ohio, covers the point.

The law is as follows: 'Whoever shall represent himself to be a clairvoyant, palmist, astrologer, or fortune-teller shall be guilty of a misdemeanor, and, on conviction thereof, shall for each and every offense be fined not more than \$100 and not less than \$25, or imprisoned in the county jail for a period not longer than three months, and not shorter than thirty days.'

For a number of years persons calling themselves "professors" have appeared in this city and have advertised extensively. They have claimed to be the greatest clairvoyants on earth, and many persons have put faith in them.

Notices were sent yesterday to eighteen "professors" and "madames" who are doing business in the city. They were told to cease business or leave Cleveland. Many of them preferred to leave the city.

May the Lord be praised for such a law, even if it did take a "number of lawyers" some time to find it. Now if they will add the "weather prophets," or all such as claim to be able to foretell the weather a year ahead, we shall be able to protect by law still *more* of that class whose "money" is "soon parted" with. Chief Moore, of the Weather Bureau, will, I am sure, approve my suggestion.

For years past it has grieved my heart to see in the large cities signs of clairvoyants, fortune-tellers, etc., right out in broad daylight. It is not only a burning shame but a disgrace to the present age. Where are our schools and colleges with their great endowments? Of course, the *News and Herald* (and we hope other daily papers as well) will refuse to insert the advertisements of these charlatans and impostors.

## POULTRY PAPER 3 Months

and book, "Plans for Poultry-Houses," 10 cts. Paper one year and book, 25 cts. If you mention *Gleanings* (reg. price, 50 cts.) Inland Poultry Journal, Indianapolis, Indiana.

# Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed, and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a \*; those we especially approve, \*\*; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

## BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

| Postage.]                                                                             | [Price without postage. |
|---------------------------------------------------------------------------------------|-------------------------|
| 8 Bible, good print, neatly bound .....                                               | 20                      |
| 10 Bunyan's Pilgrim's Progress** .....                                                | 40                      |
| Christian's Secret of a Happy Life,** 50c; cloth 1 00                                 |                         |
| 3 John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon* .....                  | 10                      |
| 1 Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper..... | 5                       |
| 2 Same, board covers .....                                                            | 20                      |
| 5 Same, words and music, small type, board cov. ....                                  | 45                      |
| 10 Same, words and music, board covers.....                                           | 75                      |
| 3 New Testament in pretty flexible covers.....                                        | 05                      |
| <i>One-third off on all Gospel Hymns mentioned above.</i>                             |                         |
| 5 New Testament, new version, paper covers.....                                       | 10                      |
| 15 Story of the Bible** .....                                                         | 1 00                    |

Years ago, when Huber was a little boy, he got hold of this book and read it clear through, asking his mother questions without number all along through the book. When he got to the end he turned over to the fore part and commenced to read it through again. We laughed at him somewhat, but let him go on. But when he started the *third* time I remonstrated. Now, this illustrates what sort of a book this is. We sold hundreds of them; but finally, when the book got to be old, it was taken out of our book list. I do not know just why; but nevertheless orders have kept coming for that wonderful book by Charles Foster—the Story of the Bible. Almost any child will read it if he gets a chance; and who can tell the effect it may have in fixing his young mind upon things that are good and pure and true? By buying them in considerable quantities we are enabled to furnish such a large book (notice the postage is 15 cts.) for only \$1.00.

|                              |    |
|------------------------------|----|
| 4 Stepping Heavenward**..... | 18 |
| 5 Tobacco Manual**.....      | 45 |

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.

## BOOKS ESPECIALLY FOR BEE-KEEPERS.

|                                                                                                                    |      |
|--------------------------------------------------------------------------------------------------------------------|------|
| 20 A B C of Bee Culture, cloth.....                                                                                | 1 00 |
| 3 Amateur Bee-keeper, by J. W. Rouse.....                                                                          | 22   |
| 14 Bees and Bee-keeping, by Frank Cheshire, England, Vol. I, §.....                                                | 2 36 |
| 10 Bees and Honey, by T. G. Newman.....                                                                            | 65   |
| Bienezkultur, by Thos. G. Newman.....                                                                              | 25   |
| This is a German translation of the principal portion of the book called "Bees and Honey." 100 pages.              |      |
| Bienezucht und Honiggewinnung.....                                                                                 | 50   |
| Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free. |      |
| 10 Cook's Manual, cloth.....                                                                                       | 1 15 |
| 5 Doolittle on Queen-rearing .....                                                                                 | 95   |
| 2 Dzierzon Theory .....                                                                                            | 10   |
| 3 Foul Brood; Its Natural History and Rational Treatment .....                                                     | 22   |
| 10 Langstroth Revised, by Chas. Dadant & Son.....                                                                  | 1 10 |
| 15 Quinby's New Bee-keeping.....                                                                                   | 90   |
| British Bee-keeper's Guide-book, by Thomas William Cowan, England.....                                             | 40   |
| The Honey-bee, by Thos. William Cowan.....                                                                         | 95   |
| 3 Merrybanks and His Neighbor, by A. I. Root....                                                                   | 15   |

## 10 | The Honey-makers, by Miss Margaret W.

Morley..... 1 15

This is a story of the life of the bee, told in very interesting style—how it lives, gathers honey, and all about it. While clothing the general subject with an air of poetry, it seems to be entirely within the limits of known facts while attempting to deal with them. We believe it will give all thoughtful bee-keepers a greater liking for their business to read it. Probably it has more to do with the curious traditions connected with bees than any other book of the kind.

## 10 | The Life of the Bee..... 1 30

Thos. Wm. Cowan, editor of the British Bee Journal, in his review of Maeterlinck's work, says: "Not since the appearance, in 1876, of Bucher's 'Mind in Animals' have we had a book about bees more charming, or one that we have read with greater pleasure, than Maeterlinck's 'Life of the Bee.'"

## MISCELLANEOUS HAND-BOOKS.

|                                                                          |    |
|--------------------------------------------------------------------------|----|
| 5   A B C of Carp Culture, by Geo. Finley.....                           | 25 |
| 5   A B C of Strawberry Culture,** by T. B. Terry..                      |    |
| New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c. |    |

|                                                                                                         |  |
|---------------------------------------------------------------------------------------------------------|--|
| 5   A B C of Potato Culture, Terry** New edition, revised & enlarged; paper, 45c; cloth, 68c, mail 75c. |  |
| This is T. B. Terry's first and most masterly work.                                                     |  |

|                                        |    |
|----------------------------------------|----|
| 8   Barn Plans and Out-buildings*..... | 90 |
|----------------------------------------|----|

|                           |    |
|---------------------------|----|
| Canary birds, paper ..... | 50 |
|---------------------------|----|

|                                            |    |
|--------------------------------------------|----|
| 2 Celery for Profit, by T. Greiner** ..... | 25 |
|--------------------------------------------|----|

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

|                                                   |    |
|---------------------------------------------------|----|
| 15   Draining for Profit and Health, Warring..... | 85 |
|---------------------------------------------------|----|

|                                                   |    |
|---------------------------------------------------|----|
| 8   Domestic Economy, by I. H. Mayer, M. D.** ... | 30 |
|---------------------------------------------------|----|

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is \$1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

## 10 | Farming for Boys\*..... 1 15

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

## 10 | Fruit Harvesting, Storing, Marketing, etc..... 75

It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexperienced in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, storing, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, \$1.00.

## | Farming with Green Manures, postpaid\*\*..... 90

This book was written several years ago; but since competent labor has got to be so expensive, and hard to get, many farmers are beginning to find they can turn under various green crops cheaper than to buy stable manure, and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops, and keeping up the fertility, by a similar treatment, on our ten-acre farm.

## 7 | Farm, Gardening, and Seed-growing\*\* ..... | | | |--------------------------------|------| | Fuller's Grape Culturist*..... | 1 15 | |--------------------------------|------| | | | |--------------------------------------------|----| | 5 Garden and Farm Topics, Henderson**..... | 60 | |--------------------------------------------|----| | | | |--------------------------------------------|------| | 12 Gardening for Pleasure, Henderson*..... | 1 10 | |--------------------------------------------|------| | | | |--------------------------------|------| | 12 Gardening for Profit**..... | 1 10 | |--------------------------------|------| | | | |----------------------------------------------|----| | 8 Gardening for Young and Old, Harris**..... | 90 | |----------------------------------------------|----| This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is



brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants ..... 20  
This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse construction, by Prof. Taft\*\*.....1 15  
This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft\*\*.....1 15  
The book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is \$1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper\* ..... 20  
5 | Gregory on Squashes, paper\* ..... 20  
5 | Gregory on Onions, paper\* ..... 20  
The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

Handbook for Lumbermen ..... 05  
5 | Home Pork-making; 125 pages, illustrated. .... 40  
I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

10 | Household Conveniences ..... 90  
15 | How to Make the Garden Pay\*\*.....1 35  
By T. Greiner. Those who are interested in hot-beds, cold-frames, cold green-houses, hot-houses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price, \$2.00.

2 | How we Made the Old Farm Pay—A Fruit-book, Green ..... 15  
2 | Injurious Insects, Cook ..... 10  
10 | Irrigation for the Farm, Garden, and Orchard\* 85  
By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

3 | Maple Sugar and the Sugar-bush\*\*..... 25  
4 | Peabody's Webster's Dictionary ..... 10  
Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use Them; in paper covers. .... 30  
6 | The same in cloth covers. .... 65  
Nut Culturist, postpaid ..... 1 50

3 | Onions for Profit\*\*..... 40  
Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

Our Farming, by T. B. Terry\*\*..... 1 50  
In which he tells "how we have made a run-down farm bring both profit and pleasure."

If ordered by express or freight with other goods, 10c less.

1 | Poultry for Pleasure and Profit\*\*..... 10  
8 | Practical Floriculture, Henderson\*.....1 10  
10 | Profits in Poultry\* ..... 75  
1 | Silk and the Silkworm ..... 10  
1 | Small-Fruit Culturist, Fuller ..... 75

2 | Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown..... 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

2 | Sweet Potatoes; Forty Years' Experience with, By Waldo F. Brown \*\*..... 08

This little book, by a veteran teacher at our farmers' institutes, ought to be worth many times the price to everybody who grows even a few sweet potatoes in the garden. It also gives full particulars in regard to handling and keeping this potato, which is difficult to keep unless you know just how.

10 | Talks on Manures\* ..... 1 35

10 | The New Agriculture; or, the Waters Led Captive (a \$1.50 book) ..... 40

11 | The New Egg-Farm, Stoddard\*\*..... 70  
This is an enlarged edition of the 50-cent book published 25 or 30 years ago by H. H. Stoddard. If I could have only one poultry-book it would be the New Egg-farm. This book is of special value to me because it not only discusses most emphatically the value of exercise to poultry, but it touches on the value of exercise to all other animated nature including humanity. The book has over 300 pages and 150 illustrations. It is entirely different from any other poultry-book in the world, inasmuch as it discusses mechanical contrivances so that all the varied operations of a poultry-farm may be done as much as possible with the aid of machinery. The regular price is \$1.00, but by buying a quantity we are able to furnish it at price given.

5 | The New Rhubarb Culture\*\*..... 40

Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book, for the lessons taught indirectly, in regard to forcing other crops besides rhubarb. Publisher's price 50c.

2 | Treatise on the Horse and his Diseases ..... 5

5 | Tile Drainage, by W. I. Chamberlain ..... 35  
Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

3 | Tomato Culture ..... 35

In three parts. Part first—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Vegetables under Glass, by H. A. Dreer\*\*..... 20

3 | Vegetables in the Open Air\*\*..... 20  
This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope\*\*.. 47

8 | What to Do and How to be Happy While doing It, by A. I. Root ..... 65

8 | Same in paper covers ..... 40

THE A. I. ROOT CO., Medina, Ohio.

### Convention Notices.

PROGRAM OF THE THIRTY-THIRD ANNUAL CONVENTION OF THE NATIONAL BEE-KEEPERS' ASSOCIATION, TO BE HELD IN DENVER, COLORADO, SEPTEMBER 3, 4, 5, 1902.

#### FIRST DAY, WEDNESDAY, EVENING SESSION.

- 7.30.—Invocation; music; address of welcome by President Harris, Mayor Wright, and Governor Orman; responses by President Hutchinson, Secretary Mason, and Director Miller.
- 8.30.—"Bee-keeping from the Atlantic to the Pacific, as Seen Through the Camera and Stereopticon," by E. R. Root, Medina, Ohio.

#### SECOND DAY, THURSDAY, MORNING SESSION.

- 9.00.—Music; president's address, "The Future of Bee-keeping;" discussion.
- 10.00.—"Which is the Most Hopeful Field for the National Association?" by Dr. C. C. Miller, Marenco, Ill.; response by Rev. E. T. Abbott, St. Joseph, Missouri; discussion.
- 11.00.—Question-box.

#### AFTERNOON SESSION.

- 1.30.—Music; "Reporting of the Honey Crop—When and How it Should be Done," by C. A. Hatch, Richland Center, Wisconsin; response by Frank Raufuss, Denver, Colorado; discussion.
- 2.30.—"Bee-keeping Lessons that May be Learned from the Word Locality," by H. C. Morehouse, Boulder, Colorado; response by E. R. Root, Medina, Ohio; discussion.
- 3.30.—Question-box.

#### EVENING SESSION.

- 7.30.—Music; "The Outside and Inside of a Honey-bee," illustrated by the stereopticon, by Prof. C. P. Gillette, Ft. Collins, Colorado.

#### THIRD DAY, FRIDAY, MORNING SESSION.

- 9.00.—Music; "Selling Extracted Honey at Wholesale—How to Get the Best Prices," by J. F. McIntyre, Sespe, California; response by T. Lytle, Manzanola, Colorado; discussion.
- 10.00.—"Putting up Extracted Honey for the Retail Trade," by R. C. Aikin, Loveland, Colorado; response by G. W. York, Chicago, Ills; discussion.
- 11.00.—Question box.

#### AFTERNOON SESSION.

- 1.30.—Music; "Managing Out-apiaries for Comb Honey," by W. L. Porter, Denver, Colorado; response by M. A. Gill, Longmont, Colorado; discussion.
- 2.30.—Question-box.
- 3.30.—Trolley-ride, "Seeing Denver."

#### EVENING SESSION.

- 9.00.—Banquet. A. B. MASON, Sec.

PROGRAM OF TWENTY-THIRD ANNUAL CONVENTION OF COLORADO STATE BEE-KEEPERS' ASSOCIATION IN JOINT MEETING WITH NATIONAL BEE-KEEPERS' ASSOCIATION.

#### WEDNESDAY, SEPT. 3.—FORENOON SESSION.

- 10.00.—Invocation; reading minutes; president's address. After the president's address ten minutes will be given for members to offer suggestions or give notice of any business or discussion that they wish to bring before the convention. Come prepared.
- 11.00.—A four-cornered discussion by four prominent apiarists, speakers limited to ten minutes each: 1st subject, "Association Work, and Influence—If Good or Bad, and Why," 2d, "Comb Honey—Best Hive and System, and Why;" 3d, "Extracted-Honey Production—Best Hive and System, and Why;" 4th, "The Most Pressing Need of Our Pursuit." General debate on the foregoing subjects; speakers limited to three minutes except by consent of the convention. Appointment of temporary committees; dinner.

#### AFTERNOON SESSION.

- 1.00.—Question-box.
- 1.30.—Unfinished business; reports of committees; new business.
- 2.30.—Election of officers.
- 3.00.—Paper, "The Bee in Literature," by F. L. Thompson; miscellaneous business.

The annual picnic of the Cayuga and Seneca Counties Bee-keepers' Societies will be held at Atwater Glen, on the east shore of Cayuga Lake, Wed., Sept. 3, 1902. An interesting program is being arranged, and any interested in bees are invited to be present. Atwater can be reached by the regular line of Cayuga Lake steamers at the special rate for the day of one fare for round trip.

C. B. HOWARD, Romulus, N. Y.  
J. W. PIERSON, Union Springs, N. Y.,  
Secretaries.

### Kind Words from our Customers.

Allow me to extend my thanks for the courteous and attentive way in which you have treated me. I must say the goods, so far as I have been able to see, are as fine as I ever saw, and I am getting words of praise from others. One man says he has put on some of the sections, and that they are "dandies." Judge Fo-dick, in speaking of his 18-inch lawn-mower, says, "Oh! it's a bird. It cuts fine—just shaves the grass." Rocky Ford, Colo., June 12. GEO. O. GOULD.

#### OUR PREMIUM QUEEN GATHERED TWICE THE HONEY.

Last August I sent you \$1 for GLEANINGS and your premium queen, and I wish to say that I am indeed pleased with your journal. I don't think I want it ever stopped. I can't do without it. Well, the premium queen is a beautiful golden, and her bees the same. They must be the long tongued sort, for her bees gather twice the honey that the others do. They work early and late; in fact, I want 60 like her.

McLennan Co., Tex., June 27. C. S. PHILLIPS.

#### "HOMES;" POTATO-GROWING, ETC.

*Mr. Root:*—I have looked every leaf over and over, even on the outside of the cover, but I can't find "Our Homes." Is it possible that my old friend and brother in Christ is so taken up with the planting of those 75 bushels of potatoes, and making those boys work, that he forgot that I was waiting to read *Our Homes* as soon as GLEANINGS came? Tell him I am very glad to hear that he is so strong and happy, and that I should like to run in on him as he did on me a number of years ago, and that I can beat him on potatoes. We were eating them larger than goose eggs by the 24th of June, and I finished planting June 25. They say here it is too late. Two years ago, in June or July GLEANINGS, I read in "High-pressure Gardening" we could get good potatoes if planted in July. Well, July 11 I planted some and got a good crop. Last year I planted July 8th, and had the best crop in this part. Tell him I do not live where he found me in years gone by, in the village of Orion, but on a hundred-acre farm nearer to Muscoda than at that time, and that I will send him a picture of my bee-yard and home some time.

Muscoda, Wis.

F. L. SNYDER.

[Dear friend S., there was a Home Paper prepared for GLEANINGS, but it never reached Medina. As we are over two miles from the postoffice we send our mail to the office by various people, and I fear that letter is now resting in somebody's unused pocket. I am daily expecting it to turn up, as it is of no value to anybody else. Perhaps I should explain to the present readers of GLEANINGS who it is that is so concerned because an issue of GLEANINGS came out without "Homes." Years ago Mr. F. L. Snyder was neither a bee-keeper nor a professing Christian. He knew almost as little about one as the other. One day he was employed by a bee-keeper, being a carpenter, and, after eating his dinner at noon, he picked up a bee journal that his employer had dropped on his workbench among the shavings. As he turned over its pages in a careless way he struck on the Home Papers. He became interested in my poor but vehement way of calling the attention of all mankind to the Lamb of God who taketh away the sin of the world. He borrowed the back numbers of his employer, and read them through. The Holy Spirit came into his heart and home, and he became not only a successful bee-keeper but an enthusiastic working Christian. He finally wrote me a letter, telling me all about it, and I paid him the visit he alludes to. Oh what a visit that was! The big arm-chair was pulled out in the center of the room, the family Bible was placed in my hands; and as the father, mother, and quite a flock of children gathered round, I gave them



a "Home talk." To be sure the Lord has prospered him with bees, potatoes, and everything else, for he read and believes in the promise in that Bible that was handed to me, where it says, "And every one that hath forsaken brethren, or sister, or father, or mother or wife, or children, or lands, for my name's sake, shall receive a hundred fold, and shall inherit everlasting life."—A. I. R.]

## Wagon World Awheel.



Half a million of these steel wheels have been sent out on our own wagons and to fit other wagons. It is the wheel that determines the life of any wagon, and this is the longest lived wheel made. Do you want a low down Handy Wagon to use about the place? We will fit out your old wagon with Electric Wheels of any size and any shape tire, straight or staggered spokes. No cracked hubs, no loose spokes, no rotten fellows, no resetting. Write for the big new catalogue. It is free.

Electric Wheel Co., Box 95, Quincy, Ill.

## HONEY QUEENS!

Laws' Leather-colored Queens.  
Laws' Improved Golden Queens.  
Laws' Holy Land Queens.

A prominent queen-breeder writes: "I have reared and sold over 5000 queens in the past few years, and I am using your stock exclusively, as it is the best I can get." Another writes: "The queen mother I got of you is the best queen I ever saw." A prominent writer for the Review states the Laws queen is making a fine showing. Many nice letters indicative of the superiority of Laws' queens on file. Prices: Tested or untested, \$1.00 each; six for \$5.00. Discount on large lots. Write for circular.

W. H. Laws, Beeville, Texas

## Bee-supplies Quick

Let us show you how quick we can fill your orders. Best of goods and the best place in country to ship from.

Get our Prices on Dovetailed Hives and Sections. Write to us if you have any Honey or Beeswax to sell.

C. M. SCOTT & CO., INDIANAPOLIS, INDIANA.  
1004 East Washington Street.

## Imp't'd Queens Direct from Italy

Please send us your address on a postal card, and we will send you our price list of queens, written in English. Our motto: "Whatsoever ye would that men should do to you, do ye even so to them." Address Malan Brothers, Queen-breeders, "Apiario," Luserna, San Giovanni, Italy.

**QUIRIN, THE QUEEN-BREEDER**, of Parkertown, Ohio, has a fine lot of young red-clover queens on hand, which can be sent promptly by return mail. Western reports indicate that Quirin's bees are "hus-tlers." See his advt on page 662.

**FOR SALE**—5000 lbs. extracted honey in 60-lb. cans, two cans in a case. This honey is of good flavor, very thick and ripe, and suitable for table use. It was gathered from raspberry, clover, milkweed, and bass-wood, and is mixed. Will sell in one or more case lots f. o. b. cars or boat at 7½¢ per lb. Address: IRA D. BARTLETT, Box 156, East Jordan, Mich.

**FOR SALE**—White clover honey in 60 lb. tin cans at 7½ cts. per lb.  
C. J. BALDRIDGE, Kendaia, Seneca Co., N. Y.

## NONE BUT THE BEST QUEENS ARE GOOD ENOUGH FOR ANY ONE.

No bee-keeper wants to give hive room to inferior bees. The best queens fill their hives with brood. The best bees fill their supers with honey. Every bee-keeper knows this but does not know that *our strains* of Italians are in the lead. Try them. You will not be disappointed. Choice tested queens, \$1.00 each. Untested, 75¢; \$8.00 per doz. Send for price list.

J. W. K. SHAW & CO., Loreauville, La.

Minnesota Bee-keepers' Supply Mfg. Co.,  
Manufacturers of  
Bee-hives, Sections, Shipping-cases, and  
Everything Used by Bee-keepers.

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending in for our price list. Address

Minnesota Bee-keepers' Supply Mfg. Co.,  
Nicollet Island Power Building, Minneapolis, Minn.

**FOR SALE!**—50 good strong colonies of bees at from \$2 to \$3 per colony. Write for particulars.  
GEO. REIF, Pray, Wis.

## Seasonable Suggestions.



### Use The Porter Spring Escape.

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncup their honey and start robbing. Just tip the super to the angle of 45° and insert the board. In a few hours it is free of bees; then take off your super. No need smoking. You can as well afford to be without a smoker as without the Porter Bee-escape. Order to-day.

PRICE: 20¢ each; dozen, \$2.25; postpaid. With board, 35¢ each; \$3.20 per 10; by express or freight.



### Use Porter Honey-house Escape

over the doors and windows in the extracting-house, or any place you wish to clear of bees. The most persistent robber can not return. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape. Don't wait till to-morrow before you get a supply. You can't afford to be without them longer.

PRICE: 25¢ each; \$2.75 per dozen; postpaid. Board without escape, 15¢ each; \$1.00 per 10.

—FOR SALE BY—

**THE A. I. ROOT CO., Medina, Ohio, U. S. A.**

And all Branches and Agencies.

California has had a light honey crop this year, but here is an encouraging letter from a resident of that State, in regard to the doings of a colony having a queen of the Superior Stock.

DOS MESAS, CALIF., June 26, 1902.  
W. Z. HUTCHINSON, Flint, Mich.  
*Dear Sir:*—I enclose you the photo. of a hive taken at 6:00 A. M. being the only time of the day that the sun shone directly upon it. The colony in this hive is the development of a three-frame nucleus, in which was placed the queen that you sent me last summer. You may remember that she was sent quite late in the season, as California seasons go. However, she raised enough bees so that they filled ten frames full of honey for winter. On account of the good showing of this queen last fall, I used her to breed from this season, taking larvae from the combs, per the Alley method, every five days. In spite of the loss in comb and bees, and the interruption to the labors of the hive, I have taken off 66 well-finished sections. Please bear in mind that this is a poor year, and most of my 145 big hives have given me nothing. These bees are the nicest bees to handle of any I have ever seen. While I do not suppose that you intended to send me a selected breeder, I am satisfied that this queen will compare favorably with any queen owned by anybody. If this will be of any aid to you in advertising Superior Stock, you are welcome to print it.  
Yours sincerely,  
H. N. CROSS, M. D.

My friend, for \$1.50 I can send you a queen reared from the same strain as the queen possessed by Mr. Cross. She will come from the same breeder, and be reared in exactly the same manner. I will guarantee safe arrival, safe introduction, purity of mating, and entire satisfaction to the extent that the queen may be returned any time within two years and the money will be refunded, together with 50 cts. extra to pay for trouble.

Special Offer.—For \$2.00 I will send one queen, and the Bee-Keepers' Review for one year.  
W. Z. HUTCHINSON, Flint, Mich.



\$1---for The Pacific Bee Journal and Gleanings---\$1

## Here in California

we need only one good year to make a stake. 200 colonies in the fall can be bought for \$500, and often return \$1500 in honey with two months' work. Off seasons we have, but where else in this wide world will an apiary produce 400 lbs. honey to the colony?

“A Term of Good Years Must Come Again.”

Pacific Bee Journal with Gleanings,  
new or renewal, \$1 a year. Address  
237 East Fourth St., = Los Angeles, Calif.



## Queens!

Buy them of H. G. Quirin, the largest queen-breeder in the North. The A. I. Root Co. tells us our stock is extra fine. Editor York, of the *American Bee Journal*, says he has good reports from our stock from time to time, while J. L. Gandy, of Humboldt, Neb., has secured over 400 lbs. of honey (mostly comb) from single colonies containing our queens. We have files of testimonials similar to the above.

Our breeders originated from the highest-priced long-tongued red-clover queens in the United States.

Fine queens, promptness, and square dealing have built up our present business, which was established in 1888.

### Price of Queens After July First.

|                                                            | 1      | 6      | 12      |
|------------------------------------------------------------|--------|--------|---------|
| Selected.....                                              | \$ .75 | \$4.00 | \$ 7.00 |
| Tested .....                                               | 1.00   | 5.00   | 9.00    |
| Selected Tested.....                                       | 1.50   | 8.00   |         |
| Extra Selected Tested—the best<br>that money can buy ..... | 3.00   |        |         |

We guarantee safe arrival to any State, continental island, or any European country. Can fill all orders promptly, as we expect to keep three to five hundred queens on hand ahead of orders. Special price on 50 or 100. Circular free. Send all orders to

**Quirin the Queen-breeder,**  
Post and Money-order Office, Parkertown, Ohio.

## To Sell Outright--U. S. Patent Apiary

Means are provided for supporting the hives so they will be practically inaccessible to the various classes of insects and small animals that, under ordinary conditions, gain access to the interior of the hives, and despoil the contents, and destroy the inhabitants. Another advantage is that the hives are so spaced in relation to each other that they are exposed to view on all sides, and therefore freely accessible in all directions to the bees. At the same time the hives are protected from the sun and rain, and a neat warm housing is provided in which the hives may be inclosed during cold weather, thus securely protecting the bees. Will sell State, county, or farm rights upon application.

Charles O. Lett, = Eclectic, Alabama.

## Carniolans.

The *gentlest* bees in the world; are very hardy, prolific, and the *best* of workers. We are the largest breeders of this race of bees in America. Choice breeding and imported queens always on hand. Untested, 65c; tested, \$1.25; select tested, \$2.25; best imported, \$4.00. Send for descriptive list.

**F. A. Lockhart & Co., Caldwell, N. Y.**  
WARREN COUNTY.

## TERRACE QUEENS.

Bred from selected stock; best of workers; very gentle, and fine color. Warranted, 75 cts.; six for \$1.00; dozen, \$7.50; tested, \$1.00.  
Harold Hornor, Terrace Apiary, Mt. Holly, N. J.



## Seasonable Offerings.

**The Fred W. Muth Co.**

Front & Walnut Streets

**Cincinnati, Ohio.**

### Muth's Pound Square Flint-glass Honey-jars

with patent air tight glass stoppers, at \$5.50 per gross. Far superior to old style with corks. Try a gross. Just the thing for home market.

### Crates of Two 60-pound Cans.

Been used once, but in good condition. In lots of five crates, 40¢ each; ten or more, 35¢. This lot is limited; order at once.

### Queens; the Best Money Can Buy.

*Buckeye Strain three-banded* are the genuine red clover workers. *Muth's strain of golden Italians* can not be surpassed. Either of above 75¢ each; six for \$4.00. Select tested, \$1.50 each. A trial will convince you. Send for our catalog of bee-supplies.

## Try a Few of My Queens.

For the first time this season I have a few queens ahead of orders. These orders came from all customers who had tried a few queens—some of them dozens or hundreds—and liked them. A few from new ones. But as I was pushed with orders I advertised very moderately. Now I have a big lot of nuclei and queens, and can send queens *promptly* as follows: Warranted queens, 75¢; six for \$4.00; one choice select warranted, \$1.00; six for \$5.00. Send for free folder.

J. B. CASE, Port Orange, Florida.

## 10 CENTS

That's all it costs to get acquainted with the

## Rocky Mountain Bee Journal.

We want to send it on trial to every reader of *Gleanings Three Months for 10 cts.* This vigorous young monthly has just entered its second year on a **paying basis**, and has become the recognized mouthpiece of the bee-keepers of the great Rocky Mountain alfalfa regions. Address

The Rocky Mountain Bee Journal,  
Box 611, Boulder, Colorado.

## Special Notice to Bee-keepers!

## Root's Supplies

at Catalog Prices.

SEND FOR CATALOG.

F. H. Farmer, Boston, Mass.  
182 Friend St., 1st Flight.

## QUEENS!

BY RETURN MAIL.

We are now breeding from three distinct strains; viz., Imported or leather color, Root's long-tongued or red-clover strain, and our old strain of white banded yellow Italians, or albinos.

### PRICES:

|                                  |        |
|----------------------------------|--------|
| Tested, each..                   | \$1.25 |
| Select tested, each.....         | 1.50   |
| Warranted purely mated, each.... | .75    |
| Same, per half dozen.....        | 4.00   |
| Same, per dozen.....             | 7.50   |
| Untested, each.....              | .65    |
| Same, per half dozen.....        | 3.50   |
| Same, per dozen.....             | 7.00   |

We have also a full line of bee-keepers' supplies including THE A. I. ROOT COMPANY'S GOODS. Send for our 32-page illustrated catalog.

## W. W. Cary & Son,

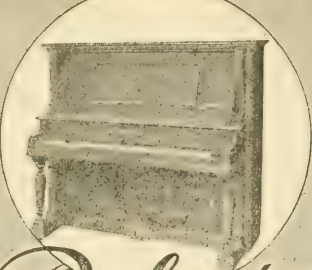
Lyonsville, Mass.

## The Best Stock.

I have had 18 years' experience in the production of honey, and during that time I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then, by crossing these different strains, and selecting the best, and breeding from them, I have secured a strain of stock that is the equal of any for honey-gathering. This year I am breeding from a daughter of Root's famous \$200 queen, and from the stock of J. P. Moore. Warranted queens, in any quantity, will be sold at 55 cts. each, and satisfaction will be guaranteed in every case, or money will be refunded.

L. H. Robey, Worthington, W. Va.

## The Ideal Piano



# Packard

Built anticipating the demand of those satisfied with nothing but the best and looking for a piano of the **Highest Artistic Creation**

Are you considering the purchase of a piano? Our proposition will prove more entertaining than any you have had. Catalog and full information free on application.

THE PACKARD COMPANY  
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## SEWS ANYTHING

from silk to coarsest  
est fabrics. The celebrated

## BALL-BEARING ARLINGTON

equal of any \$40 to \$65 Machine.

Combines best of all mechanics. Efficiency, beauty, and ease of use. Finest and most complete attachments. BALL-BEARING, hence easy running. Satisfactory for 20 years. 250,000 sold. Testimonials from every State.

Winstar Free Catalog showing all styles and samples of work. Arlington guaranteed machines from \$11.95 up.

Our Automatic Cabinet at \$17.75 is a wonder.

CASH RYERS' UNION, Dept. A-245, CHICAGO, ILL.



Shipped on 3 months' Trial

## Fruit Packages of All Kinds.

— ALSO —

## BEE-KEEPERS' SUPPLIES. . .

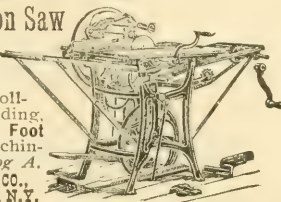
Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,  
Berlin Heights, - - Erie County, Ohio.

## Union Combination Saw

For Ripping, Cross-cutting, Rabbeting, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line Foot and Hand Power machinery. Send for catalog A.

SENECA FALLS MFG. CO.,  
44 Water St., Seneca Falls, N.Y.



**POULTRY PAPER**, illustrated, 20 pages, 25 cents per year. 4 months' trial 10 cents. Sample Free. 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. Catalogue of poultry books free. Poultry Advocate, Syracuse, N.Y.



## A Birthmonth Ring.

A genuine 11-k. Gold Ring, set with fine Sardonix, sent to any address for \$3. With 10-k. ring, hard to tell from the real, \$2.00. Sardonix is the stone for August. It signifies Conjugal Happiness. The Ring is a beautiful gift for an August birthday. The cut shows our White Diamond ring. Solid gold ring, fine artificial stone, price \$2.50.

Jno. E. White Co.  
150 Broadway, New York.

# TREES

Fruit & Ornamental,  
Shrubs, Roses, Bulbs  
and Plants.

Correspondence solicited. Valuable Catalogue free.

49th year 44 greenhouses, 1000 acres.  
THE STORRS & HARRISON CO.,  
Painesville, Ohio.

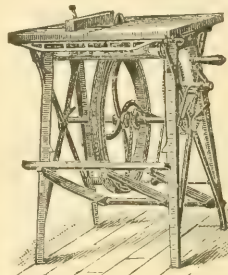


PAGE

## WE COULD SAVE

\$500 a day if we could make PAGE FENCE of common fence wire, but it won't hold the coil.

Page Woven Wire Fence Co., Box S, Adrian, Michigan.



## BARNES' Hand and Foot Power Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.

Machines on Trial. Send for illustrated catalog and prices. Address

W. F. & Jno. Barnes Co.,  
545 Ruby St.,  
Rockford, : Illinois.

## 200 TESTED RED-CLOVER QUEENS.



on hand, to go by return mail at \$1.00 each; untested, 75c each; \$8.00 per doz.; 50 to 100, special prices. We have colonies this year that gathered \$2.25 of clover honey. This beats two years ago. We breed from one of Root's red-clover queens, too. She's a hustler, and fine. Now is your time to get ready for next season. We guarantee

all our queens to reach you P. O. in good condition, and please you. Money-order office, Guernsey, Pa.

G. ROUTZAHN, Menallen, Pa.

## HONEY QUEENS FROM TEXAS.

I can furnish queens of 6 different races, all bred in their purity in separate yards from 6 to 25 miles apart. Untested queens, 75 cts. to \$1.00 each. Tested queens of either race, \$1.50 to \$3.00 each. Breeders, \$3.50 to \$5 each. Bees by the pound, and 1, 2 and 3 frame nuclei a specialty. Prices cheap. Quoted on application. Price list free. Will Atchley, Box 79, Beeville, Bee Co., Tex.

## Queens for Aug. and Sept., 60 cts.

Abbott L. Swinson, queen-specialist, will mail warranted American Albino Italians (best bees known) to introduce the stock, at 60 cts. each; \$6.00 per dozen. Everybody try them, and get the bee you need.

Swinson & Boardman, Box 358, Macon, Ga.

## Barns

Barns of plank save timber and cash. Neatest, cheapest, strongest, most desirable.

5000 in 12 States. Tested for 20 years. Indorsed by agricultural colleges and scientific men. Book for stamp.

Shawver Brothers, Bellefontaine, Ohio.



## Long Tongues Valuable South as well as North.

How Moore's strain of Italians roll in the honey down in Texas

Hutto, Texas, Nov. 19, 1902.

J. P. Moore.—Dear sir:—I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my yut-apiaries next spring with your queens.

Yours truly, HENRY SCHMIDT.

The above is pretty strong evidence that red clover is not the only plant which requires long-tongue bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75 cts. each; six, \$1.00; dozen, \$7.50. Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00. Safe arrival and satisfaction guaranteed. Circular free. I am filling all orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.

Pendleton County.

## Queens! Queens!

We have five different yards, 5 to 20 miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos are bred for business. You can send in your orders at following prices the rest of this year: Tested, \$1.50 each; \$3.00 for six; \$15.00 per doz. Untested, 75c each; \$1.25 for six, or \$3.00 per doz. Fine breeders, \$5.00 each. Safe arrival guaranteed. Write for free catalog. Tells how to raise queens and keep bees for profit. The Jennie Atchley Co., Beeville, Bee Co., Tex.

## Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—To exchange.—Three lots with five-room house, in suburbs. Price \$2750. A rooming house in center of city, full of roomers and good for World's Fair, 1904 (2½ years' lease); and \$3400 interest in manufacturing business now paying, and more work in sight than we can do. Each or all for fine farm on fine lake—good location for bees—boating and summer resort—farther north or west than Missouri. Or, make offer of what you have to trade for some or all of above. A. W. DUDLEY, 1211 Pine St., St. Louis Mo.

**WANTED.**—To sell a Florida home, 15 acres with 5-room house. Postoffice and only grocery business in village goes with the place. Fine location for bees. For full particulars address G. S. WARNER, Palma Sola, Fla.

**WANTED.**—To sell in December 160 acres of improved land for \$500, and 200 hives of yellow bees, and extracting tools. Hive factory very cheap for cash. Come for health where there is but little rain and no snow. Land is rich, and crops grow well. This State has all kinds of climate and soil. S. W. CONRAD, Poplar, Tulare Co., Cal.

**WANTED.**—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card. N. A. KNAPP, Rochester, Ohio.

**WANTED.**—Good man to sell honey at wholesale; write me at once.

AARON SNYDER, Kingston, N. Y.

**WANTED.**—To sell 200 swarms of Italian bees. Also 7000 lbs. white extracted honey in 60-lb. cans; 5 acres choice improved land, and house and two lots; or will trade for merchantile business. Don't write unless you mean business.

ELIAS FOX, Hillsboro, Wis.

**WANTED.**—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & Co., Chicago, Ill.

**WANTED.**—One dollar for 15 W. P. Rock eggs; \$3.00 for 50, or \$5.00 for 100; from 83 to 95 scoring birds; cockerels and pullets, \$1.00 each; 75 cts. for one Golden Italian queen, or \$8.00 per dozen—after August 1st, 50c each or \$5.00 per dozen.

GEO. W. COOK, Spring Hill, Kansas.

**WANTED.**—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid. O. H. HYATT, Shenandoah, Ia.

**WANTED.**—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no drip honey-cases for plain Danz. and 4½×4½ sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—To exchange American Eclipse evaporator—contains 78 reversible trays, 7 square feet each—for bees or offers, or will sell cheap for cash. This evaporator will be a great bargain to anyone having fruit to dry. It takes 20 to 25 bushels of apples or peaches at one filling, is nearly as good as new, and will go cheap as I have no more use for it.

REINHARD STEHLE, Marietta, Ohio.

**WANTED.**—One or more copies of Vol. II. Cheshire's Bees and Bee-keeping. Let us know in what condition your book is, and price wanted.

THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—To exchange warranted and tested Italian queens for good typewriter and foot-power saw. JOHN M. DAVIS, Spring Hill, Tenn.

**WANTED.**—To exchange for honey or maple sugar (or would sell for one-third price), one extra-large cloth-covered carrying-case filled with 72 perfect records for graphophone or phonograph. A grand assortment of songs, music, recitations, etc. Records fit all ordinary instruments. A great bargain. A. T. COOK, Seedsman, Hyde Park, N. Y.

**WANTED.**—To exchange for honey or maple sugar (or will sell for one-half price) 27½ lbs. Roman type—5½ point (agate)—with spaces and quads; brand new, never used, extra quality; list price, \$20.75. A. T. COOK, Seedsman, Hyde Park, N. Y.

**WANTED.**—My queen-customers to know my address is changed from Grayson to Modesto. Delivery by creamery-wagon; residence unchanged.

W. A. H. GILSTRAP, Modesto, Cal.

**WANTED.**—To sell Premo B camera, 3 plate-holders, and tripod. Write A. H. FRETTER, Medina, O.

**WANTED.**—To sell black queens for queenening out-apiaries, at 25c each; 6 for \$1.25; 10 for \$2.00. J. M. JENKINS, Wetumpka, Ala.

**WANTED.**—Some one to buy my farm of 56½ acres; good buildings, fruit, etc., 30 stands of bees in Simplicity hives; good market for honey; 20 miles from railroad; good cash market; good reasons for selling. R. N. RANDALL, Swetwater, Tenn.

**WANTED.**—To sell by Sept. 15, four full colonies of Italian bees at \$3.00 each; also entire cloof of S. C. Brown Leghorns at \$1.00 each.

W. E. DEAN, Pioneer, Williams Co., Ohio.

**WANTED.**—To exchange a Doolittle wax-extractor, about 600 1½×1½ barway sections, and 400 3½×5½ Ideal sections, for beeswax or offers—\$2.00 for extractor and 25c per 100 for sections.

A. H. KANAGY, Milroy, Pa.

## PAGE & LYON,

New London, Wisconsin.

MANUFACTURERS OF  
AND DEALERS IN . . .

### BEE-KEEPERS' SUPPLIES. . . .

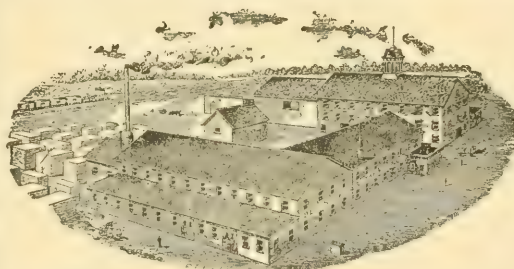
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Catalog and Price List. . . . .

## Now Ready!

### Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,  
Wetumpka, Elmore Co., Ala.



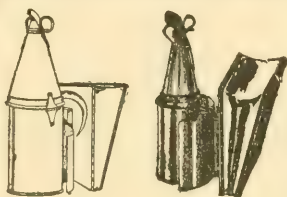
## BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

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Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used.

Truly yours,  
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## Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.



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## Honey Column.

### GRADING-RULERS.

**FANCY.**—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

### CITY MARKETS.

**NEW YORK.**—New crop comb honey from Pennsylvania and New York is beginning to arrive in limited quantities. There is a good demand for fancy white at 14, and No. 1 at 13, and exceptionally fine lots will possibly bring a little more; lower grades quiet at 10@12. As to extracted honey, fancy grades are in good demand at from 6@6½ for white, and 5@5½ for light amber; southern, in barrels and half-barrels, quiet at 47½@60 per gallon, according to quality. Beeswax, dull at 27@28.

HILDRETH & SEGELKEN,  
265-7 Greenwich St., New York City.

**ALBANY.**—We are receiving some light-colored comb honey which sells at 15c, which is about all that can be counted on for any amount. Extracted is in moderate demand yet. We quote light color 7@7½; mixed, 6½@7; dark, 6@6½. Beeswax, 28@30.

MACDOUGAL & CO.,  
375 Broadway, Albany, N. Y.

**SAN FRANCISCO.**—Comb honey, white, 11½@12; amber, 10@11. Extracted, water-white, 6@6½; light amber, 4½@5½; dark, 4@5. Producers are posted this season on the output, and are asking ½ to 1c over market prices. Speculators are not buying in consequence, but consumers are stocking up.

E. H. SCHAEFFLE,  
Murphys, Calif.

**KANSAS CITY.**—Receipts of comb honey increasing, so is the demand. We quote new fancy white comb 14; No. 1, 13; No. 2 and amber, 12½@13c. Extracted white, 6; amber, 5@5½. Beeswax, 22@25.

C. C. CLEMONS & CO.,  
306 Grand Ave., Kansas City, Mo.

**SCHENECTADY.**—The weather conditions are so favorable that there is an unusual demand for new comb honey. We can not recall a season when our sales were as large in August, and the quality is good. We quote fancy clover 15@16; No. 1, 14@15; No. 2, 12@13; no new buckwheat on the market yet.

CHAS. MCCULLOCH,  
Aug. 19. 523 State St., Schenectady, N. Y.

**CINCINNATI.**—New comb honey is not coming in so plentiful so far; but whatever has come in, and is fancy water white, has sold to stores from 15@16. Fancy honey kept over from last year sells for 14. The market for extracted is more lively, bringing as follows: Amber, 5@5½; alfalfa water white, 6@6½; white clover, 7@7½. Beeswax, 30.

C. H. W. WEBER,  
Aug. 19. 2146 Central Ave., Cincinnati, Ohio.

**PHILADELPHIA.**—Honey has been coming in quite freely the last ten days. The East has produced as large a crop of honey as we have had in many years, but the short crop in the West has not reduced the price. We quote fancy comb 15@16; No. 1, 14@15. Extracted fancy white, 8. We are producers of honey, and do not handle on commission.

WM. A. SELSER,  
Aug. 21. 10 Vine St., Philadelphia, Pa.

**NEW YORK.**—There is now a good demand for honey of all kinds. Fancy comb is selling at 15; No. 1, 12@14; amber, 11@12. Beeswax, 28.

FRANCIS H. LEGGETT & CO.,  
Aug. 26. Franklin and Varick Sts., New York.

**ALBANY.**—More demand for honey. New white comb receipts mostly sell at 15c. We quote fancy, 16; No. 1, 15; A No. 1, 14. Extracted, white, 7@7½; light, 7; mixed, 6@6½. Beeswax, 28@30. Commission (5 per cent) with advances.

MACDOUGAL & CO.,  
Albany, N. Y., Aug. 28.

**FOR SALE.**—Fine quality of extracted honey, both clover and sweet clover, in 60-lb. cans, at 8c; also bees in L. frames. Do not send local checks.

DR. C. L. PARKER, Sta. A., R. F. D., Syracuse, N. Y.

**FOR SALE.**—100 cases (two cans each) of fancy white clover extracted honey, at 8 cts. per pound. No better gathered by any bees anywhere. Will shade ¼c in 25-case lots.

WM. A. SELSER, Jenkintown, Pa.

**FOR SALE.**—Extracted honey—clover, amber, or buckwheat—in 170-lb. kegs. Write for prices before buying elsewhere. Sample, 8c.

C. B. HOWARD, Romulus, N. Y.

**FOR SALE.**—Light extracted honey; cans and kegs, 7@8c per lb. Sample, 8c.

I. J. STRINGHAM, 105 Park Pl., New York City.

**FOR SALE.**—5000 lbs. extracted honey in 60-lb. cans, two cans in a case. This honey is of good flavor, very thick and ripe, and suitable for table use. It was gathered from raspberry, clover, milkweed, and basswood, and is mixed. Will sell in one or more case lots f. o. b. cars or boat at 7½c per lb. Address

IRA D. BARTLETT, Box 156, East Jordan, Mich.

**FOR SALE.**—Extracted honey, from alfalfa, at 7c per pound. Send for sample.

D. S. JENKINS, Las Animas, Col.

**FOR SALE.**—Several thousand pounds comb honey in Danzenbaker 4x5 sections. Shall commence filling orders in August.

WM. MORRIS, Las Animas, Col.

**FOR SALE.**—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHUISER,  
301 Huntington Ave., Buffalo, N. Y.

We can place a few cars of comb and extracted honey; will be glad to correspond with parties having some to offer. We also solicit local consignments.

C. C. CLEMONS & CO., 306 Grand Ave.,  
Kansas City, Mo.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer.

SEAVEY & FLARSHHEIM,  
1318-1324 Union Avenue, Kansas City, Mo.



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We expect to be able to fill orders by return mail, or almost as promptly as that, so there will be no great delay, at any rate.

Remember, the Weekly American Bee Journal one year and the Queen—both for only \$1.25—to a NEW subscriber.

Now for your name and \$1.25—and then the Queen that we will send you. Address,



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[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

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E. R. ROOT, Editor of Apicultural Dept.  
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**Cus. Dittmer,**  
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**1200 FERRETS.** All sizes; some trained; first class stock. New price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**

**Angora Goats** are handsome, hardy, profitable. Prize stock; low price; circular. **ED. W. COLE & Co., Kenton, O.**

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Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

**Marshfield Manufacturing Company, Marshfield, Wisconsin.**

## I.J. Stringham, New York City

105 Park Place.

**Honey=jars!** 1-lb. square jars, \$5.00 per gross; No. 25 jar, porcelain top, \$5.75 per gross; nickel cap, fancy, \$5.50 per gross. All clear flint glass. We ship from N. Y. City. Cartons, shipping-cases, every thing a bee-keeper uses. Tested Italian Queens, \$1.00; untested, 70c. Catalog free. Apiaries are located at Glen Cove, Long Island.

## Fancy Glassed Comb Honey Wanted!

We are in the market now for some fancy glassed (glassed on both sides of each section) comb honey. Will pay a fancy price for a fancy article. Advise us at once of how much you have, and what gathered from.

A. L. Boyden, care of The A. I. Root Co., Medina, Ohio.

## Orders Shipped Promptly.

We are running our large factory and shipping-department DAY and NIGHT, and are therefore in position to make prompt shipment of orders.

**Lewis White Polished Sections are Perfect.** Last winter's cut of Wisconsin basswood is the whitest we have ever seen. When you order No. 1 Sections from us you will get a strictly No. 1 grade in both workmanship and color.

**Our Bee-hives** are made of a fine grade of lumber and are perfect in workmanship. A full line of every thing needed in the apiary ready for prompt shipment. Catalog mailed on application.

**A Suggestion.** Do not put your money into *new-fangled* bee-hives, but buy a simple, serviceable, and well-made hive such as the regular Dovetailed Hive, arranged for beeway sections. Honey-producers in Colorado, one of the largest honey-producing sections in the world, use this style.

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**Golden Italians** have no superiors and few equals; untested, 75c; 6 for \$1.00.

**Red-clover Queens** which left all records behind in gathering honey; untested, \$1; 6 for \$5.

**Carniolans,** the so highly recommended, being *more* gentle than others; untested, \$1.00.

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Successor to Chas. F. Muth and A. Muth.



# GLEANINGS

A JOURNAL DEVOTED  
TO BEES  
AND HONEY  
AND HOME  
INTERESTS.

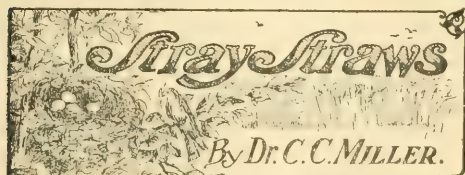
## BEE CULTURE

ILLUSTRATED  
SEMI-MONTHLY  
Published by THE A. R. ROOT CO.,  
\$1.00 PER YEAR MEDINA, OHIO

VOL. XXX.

SEPT. 1, 1902.

No. 17



YE EDITOR advises in certain cases "to place the cell cups in cell cups that are queenless." Wouldn't that split the cell cups? [I was aware that I was crowded in work a little; but I did not know that I had allowed myself to let pass my eyes any thing so absolutely meaningless as this. Why didn't you tell us where it was?—ED.]

ACCEPTING the belief that it is the young bees that start the swarming fever, *Le Rucher Belge* advises taking away frames of sealed brood and replacing with frames of foundation, or, still better, with combs filled with eggs and very young brood. [Is this one reason why the brushed swarm works so satisfactorily? for you will remember the sealed brood is taken away.—ED.]

A. I. ROOT tells a good strawberry story, p. 660. Here's a better one. On this clay hill of mine, my brother-in-law, G. Stull, got \$638 as the proceeds of  $1\frac{1}{2}$  acres, at 10 cts. per qt., \$1.50 to \$2.00 for 24-qt. case. That was the first year. This year he got \$650 from 2 acres, at 10 cts. per qt.; \$2.00 to \$2.40 for 24-qt. case, and part of the 2 acres was an old bed picked the fifth year.

YOU MISUNDERSTAND Mr. Alley, p. 680, Mr. Editor. The Alley plan doesn't "give a frame of eggs from that best queen," but just a strip with a very few eggs, and he can "rear thousands of queens from the best breeder in the yard" just as well as you can with any other method. [But Mr. Alley's plan uses more eggs; and in the case of a breeder that is almost priceless her owner is very anxious to convert all the eggs possible into queens.—ED.]

I WONDER if Henry Alley means what he says when he says, page 679, "first-class queens can not be reared while there is a fertile queen present in the hive." That

would bar out all the queens reared from creation until about fifty years ago, except in the very few cases where the queen was accidentally killed. I suspect he means queens reared *artificially* with a fertile queen present. [I suspect that is what he meant; but I do not agree with him, even then.—ED.]

YOU DON'T SEEM to get my idea, Mr. Editor. *After* bees get to storing in supers a circle of honey in brood-frames doesn't hinder storing above. They may be loath to cross that circle to *begin* storing; but at the time of beginning storing, my bees have no margin to speak of to cross, so what more do I want? [If I did not get your idea, doctor, your observation as here related is exactly the same as my own; viz., bees are loath to cross the circle of honey when they begin storing.—ED.]

SELDOM have I found any thing so interesting as the report of M. Leon Dufour upon the laying of the queen. Think of keeping tally for three years of all the brood reared in two different colonies by measuring it once every 21 days! I confess it never occurred to me before that by counting the amount of brood and eggs at the end of each 21 days you would count *all* the brood reared. [Would that more of our estimates were based on such careful observation as those of M. Dufour!—ED.]

YOU WANT TO KNOW definitely, Mr. Editor, just what the season has been here. Well, it has been definitely bad to worse. Not a finished super Aug. 21, and up to Aug. 15 nuclei and weak colonies had to be watched to keep from starving. The season has been remarkably cold and wet. If we could have hot weather it is yet possible that some marketable honey could be had in sections (while there's life, etc.), for of late the seasons seem to have changed, and some honey of fair quality is stored from fall flowers. Otherwise sugar by the ton will be needed for wintering.

INGENIOUS is the plan used by M. Dufour for measuring the amount of brood in a comb. Take a frame the size of your brood-frames; stretch upon it wires running ver-

fically and horizontally at equal distances from each other; lay this frame upon your comb, and count the number of squares occupied with brood. His wires are a centimeter (.4 of an inch) apart, and every fifth wire is colored, so as to keep track easily. We might have the wires half an inch apart, and then each little square would contain seven cells (six if the comb is built from foundation), and each large square 25 times as many.

WHITE CLOVER keeps up its reputation for exceptional behavior this year. Up to the middle of August it has been continually on the gain, and fields are now white with bloom where scarcely a blossom was to be seen in June. But the bees seem to get nothing from it. [What you describe is exactly true in our locality. The fields are now bright with the bloom of white, red, and alsike clover. On my rides back and forth between the factory and our farm I have taken pains to see whether there are any bees on the clover; but there is never a one, and we have had the right kind of honey weather too. What is the matter? Can't clover yield out of season? But this large amount of white clover certainly must mean something for next year, for the plants are developing strong roots.—ED.]

YOU THINK, Mr. Editor, that Dr. Gandy "certainly could not mean that when a swarm is actually coming out, it would stop at the *very moment* the bees could have more room." Look at what he says, p. 607: "It commenced to swarm, and I immediately set two of them off and put on another hive with empty combs, also taking out a few frames of honey from one of the hives I set off and put in frames of foundation, and they immediately quit coming out." Now, if he didn't mean what he said, suppose you ask Dr. Gandy what he did mean. [Yes, I admit that Dr. Gandy's assertion is pretty strong; but I have sometimes unwittingly myself made strong statements when I did not believe in the practice that the word conveys. That is what I meant when I said I did not believe Dr. Gandy meant just what his words made him say.—ED.]

REPLYING to your question, Mr. Editor, although it may knock my argument, if I "had only one or two cases of foul brood in a yard," I wouldn't take the chances of killing the spores with formalin, yet I've no right to dispute Prof. Harrison's word that he *did* kill the spores with formalin; and if formalin kills spores, then your notion that "a bonfire would be cheaper to apply than any concoction of drugs" is an erroneous notion, for the bonfire would destroy the combs and the concoction would save them. But is there no way of testing whether formalin does kill spores? [I did not mean to question Prof. Harrison's word. But here is the point: *He* might be able to make formalin kill the spores; and, on the other hand, owing to a lack of skill or scientific knowledge *I* might utterly fail.

What I tried to imply was that, under the circumstances, I could afford to take no chances. I knew what fire would do, and knew how to apply it.—ED.]

DOOLITTLE thinks we don't know the cause of bee paralysis, p. 678, and I think others have said the same in GLEANINGS. The cause of foul brood is *Bacillus alvei*, so named by Cheshire, and the same authority gave the name *Bacillus Gaytoni* to the microbe that causes paralysis. See Cheshire's "Bees and Bee-keeping," Vol. II., p. 570! [Yes, I remember reading that Cheshire described a disease that bore some resemblance to what we call here bee paralysis; but he had only one sample for examination, from a Miss Gayton, and he therefore named the bacillus after her. Are you sure that the *Bacillus Gaytoni* has a bacillus or microbe that stands for bee paralysis? When I agreed with Mr. Doolittle that we did not know the cause, I meant we did not know the conditions that are favorable to its development, and I do not think we do. So far I believe there is no cure that has ever been named for it.—ED.]



Short'n'ing days and colder nights—  
One more season's passed;  
Happy they who've gathered stores  
Ere comes winter's blast.

The trouble between the pear-men and bee-keepers in California seems to be in a fair way of easy solution, according to the *Tulare Register*, which says:

Thomas Thompson, who has a little place in the outskirts of Tulare, had a pear orchard of thirty-five trees or more that was early attacked with the dreaded blight. Mr. Thompson did not know what to do to defend his trees, but, unlike many others, he thought that he must do something and not surrender without striking a blow, so he went into the orchard and cut out the infected limbs as soon as he detected the infection, cutting away below the blight and squirting a bit of coal oil from a common oiler on the freshly cut stub of limb. The result is that he has the best promise of a crop in the neighborhood, and not a sign of the blight at this time is to be seen anywhere in the orchard.

A writer in a late French paper says one of the best ways to induce a swarm to stay in a new hive is to smear the inside of the hive with propolis in a very thin condition—much thinner than varnish. It is claimed the odor of the bee-glue will do more to hold the bees in a hive so treated than any thing else unless it be young brood. This may account for the savage way the bees acted as described by Mrs. Harrison, they seeming to resent the destruction of this substance. At all events, they seem to have a



great liking for the odor of propolis in and around their premises. I believe the propolis was reduced with alcohol.

### AMERICAN BEE JOURNAL.

In reply to a correspondent, Dr. Miller indulges in the following piece of logic, and it seems to be correct:

If Dr. Gallup is right in saying that queens reared by the Doolittle plan or by any other plan than by swarming or superseding are necessarily inferior, then Mr. Doolittle is either ignorant or di-honest. It is easier for me to believe that Dr. Gallup is utterly wrong than to believe that Mr. Doolittle is either a fool or a fraud. Neither does Mr. Doolittle stand alone, for a large number of others that I believe are intelligent and honest stand with him.

### BEE-KEEPERS' REVIEW.

I guess we'll have to call them twin cousins. Gran'pa W. Z. says each of his twin daughters—well, I can't exactly state it; but Nora's is a little girl and Cora's is a boy. Set 'em up in SMALL CAPS, W. Z., and give us a half-tone of them in due time.

Mr. Hutchinson brings out a splendid issue for August. The article from Mr. M. A. Gill, on alfalfa, is of unusual importance to the bee-keeper and the farmer as well. I make the following copious quotations from it:

I say again that it is *not* a fact that alfalfa cut before it comes into bloom makes the best hay; and I know of many careful, thoughtful farmers who were once led into that practice who are now letting their alfalfa stand until it reaches that certain stage when it contains, and will retain, the most food value.

Who can not remember when this same fallacy was taught by some, and imitated by others, in regard to cutting wheat and corn, and even the digging of potatoes, while in an immature state?

Some years ago the Experiment Station of New Mexico carried on a series of experiments to find out at what stage of development the alfalfa plant would make the most pounds of the best hay. As I understand it, they made four cuttings of the first crop. First, when about half grown; again just before it came into bloom; then while in full bloom; and again after it had gone so seed.

They then took four bunches of steers and fed them the same number of pounds from the four different cuttings, and weighed each bunch of steers every five days during the experiment, which lasted some 60 days. The result was that five steers *died* during the experiment from the first cutting, while the best results were from the cutting made in *full bloom*; and that cutting made 500 lbs. more hay per acre than any other.

Much good could be done by the hundreds of bee-keepers in the West who buy hay if they would bring this matter before the farmers, not arbitrarily, but candidly, and insist that the hay they buy shall have been cut when in full bloom, and offer to pay a dollar per ton more for it. They can afford to do this, because it is *worth it* for feeding purposes.

Much good, too, would come if bee-keepers and writers and editors would cease *talking* this "tommy rot," which, in fact, is only another "Wiley" canard.

Again, we read, occasionally, that the delicious alfalfa honey will soon be a thing of the past. Let me say that, if any one "unter der linden" in Wisconsin, among the clover and buckwheat fields further East, among the mangrove and orange fields in Florida, or even in the great forests of Cuba, is laboring under this delusion, let him be at once undeceived. Alfalfa has been the "sheet anchor" of the great arid West, and is her hope for the future.

Comparison with other vegetables shows that exceedingly immature fruit is not so good as when ripeness has just been reached; and it certainly seems as if alfalfa cut four or even six times a year could not have

the nutritious qualities that might be expected of it when the blooming period has just past.



### USING FULL SHEETS OF FOUNDATION.

"Did you see that flash of lightning, Mrs. D.? Crash! bang! How the thunder rends the air. That on-coming cloud is awfully black. Looks like another cloud-burst, and to-day is August first. Rained 28 out of 30 days in June, and the account shows only seven days out of the 31 in July on which it did not rain more or less—generally more. Hay is rotting in the fields by the hundreds of tons; wheat in the shock is soaked and ready to grow; potatoes struck with the rot, blight so the vines make a horrid stench, equaled only by four-fifths of the potatoes in each hill which are already decayed so they will not hold together in digging. Why, Brown! where did you come from? Got here just in time. My! how it rains!"

"I hurried till I am out of breath. I'm glad I got here in time. How's this for bees?"

"It makes little difference with the bees for the next two weeks whether it rains or shines, as the clover has gone in the wet, and buckwheat will not open before August 12 to 15—*bang!* I believe the house was struck."

"I guess not. But it was a close call. See how it pours. Every thing is all afloat already."

"The ground was already full of water, so it takes little to make things standing in water. But it begins to look a little lighter, which shows that the worst is past. What brought you over here such a day as this?"

"It was so wet I could do nothing else, so I thought I would come over and talk over the matter of using comb foundation. What I wish to know is which pays better—to put full sheets of foundation in the brood-frames, or put in only starters and let the bees fill the frames with natural comb."

"That depends a good deal on the wants of the apiarist. If he is working for extracted honey, and wishes his frames filled with worker comb, so that he can use these combs in any place in the apiary, then it is almost a necessity to use foundation."

"Why?"

"Otherwise only drone comb will be built in the upper stories, over the brood-combs, especially where a queen-excluder is used, as it is best to do when working for extracted honey."

"Why would drone comb be built under

such circumstances more than under the most favorable?"

"Because extracted honey is best produced with very strong colonies; and such colonies will, as a rule, build mostly drone comb when the honey-flow is on, while such comb is a disadvantage to any apiarist only as it is kept for special use over queen-excluders."

"Does not drone comb work equally well with worker comb when working for extracted honey where queen-excluders are used?"

"Yes. But unless the average apiarist is very different from Doolittle there will come a time in his life when he will say he would give almost any thing if those combs were only worker combs so he could use them just when and where he pleased. Where half-depth combs are used for extracting, as the custom of some is, it does not make so very much difference whether they are of the worker or drone size of cells; and in this case I would allow the bees to build their own combs in the frames."

"But suppose the apiarist is working for comb honey, then which is best?"

"That will depend on whether he is going to allow swarming, or whether he is going to keep his bees from swarming. If the latter (I very much doubt about his success in this matter, however), then he will have as much need of foundation when combs are being built as he would were he working for extracted honey, as strong colonies building combs under any system of non-swarming will give a drone size of cell more often than otherwise."

"But I work my bees on the swarming plan. How would it be with me?"

"If you use full sheets of foundation in the sections, and such use of full sheets is considered right by the larger part of our practical comb-honey producers, then I would say that it would pay to allow the bees to fill the brood-frames with natural comb. Each new swarm seems to go prepared for a start at comb-building in its new home, and such building seems to give them a greater activity than they show if the hive is supplied with empty combs or foundation; and I have often thought that, where the hive is contracted so as to hold only about two-thirds of the number of frames needed to fill the whole hive, and the sections put on at the time of hiving, this number of combs will be built by the bees without the loss of a single pound of honey to the apiarist, while the cells will be nearly or entirely of the worker size, unless an old or failing queen is used, in which case little besides drone comb will result under the most favorable circumstances."

"Do you have the most off your comb built in this way?"

"Well, no; although I have had very many perfect combs built in this way, and know it to be a good plan."

"How do you have them built?"

"Really the nicest way, where we decide

to have our combs built by the bees, is to set apart each year all the colonies we may happen to have when the honey-flow commences, that are not strong enough to do good work in the sections, or upper stories of hives for extracted honey; and as soon as the honey-flow commences, take away all their combs, except perhaps one having a little brood and some honey in it, giving the brood to other stronger colonies to make them still stronger, when just the number of frames these little colonies can work on to the best advantage are given to them, each having a starter of worker comb or comb foundation in it, say from half an inch to an inch in depth. In this way I succeed in getting the nicest of combs built; and by taking them out in such a way as to keep the bees desiring only worker brood, I am quite sure a worth of combs can be obtained greater than the value of honey which it would be possible for them to produce were they allowed to have their own way. At least, this is the way I think I have proven the matter in my case."

"Do you think I could do as well?"

"I do not know why you should not; but if you fear otherwise, it will be easy for you to test the matter for yourself; and if this does not prove in your hands as it does with me, then you can change to what seems best for you, or use foundation. There is no great loss in trying a few of the little colonies that way, should you have them, as the combs of brood given the stronger colonies help there fully as much as could be possible anywhere else. But it has entirely stopped raining now, and I am obliged to go to town on business."



SAY, dear reader, if you know any thing about brushed or "shook" swarms I wish you would tell us what you know.

By the time this journal is finding its way to our readers I shall be on the way to Denver, together with my brother Huber.

As mentioned in a footnote to a Straw in this issue, there is a large amount of white clover in bloom everywhere; but I have yet to hear of its yielding honey, even where the fields are white with the bloom.

SWEET clover did not do well this year, in the East at least. It needs a season of drouth to make it do its best. The great amount of rain early in the season made



the plants grow up good and strong; but the bloom went out almost as soon as it came in.

THE following note, received from E. T. Flanagan, tells of the death of one of our old contributors. Seven or eight years ago his name appeared in our columns very frequently.

In the sudden and unexpected death of Mr. Geo. F. Robbins, formerly of Mechanicsburg, Ill., who has been in charge of my bees in Uvalde County Texas, for the last five years, the bee-keeping fraternity have lost a valued member, and I have lost a true and valued friend and a faithful employee whom it will be hard to replace. He was a true Christian gentleman and an *honest man*. His name will be remembered by the older subscribers to GLEANINGS, especially in Illinois.

E. T. FLANAGAN.

Belleville, Ills., Aug. 24.

#### MORE ABOUT DR. GANDY.

I HOLD in my hand several letters, documents, and legal papers, from prominent men, editors, the mayor of Humboldt, and others certifying to the correctness of Dr. Gandy's statement. I also hold in my hand a copy of a lease from one of Dr. Gandy's tenants, who agrees, among other considerations, to grow ten acres of catnip and an equal area of sweet clover within the range of Dr. Gandy's bees. I have seen one or two other leases of a similar character.

I would still ask our readers not to go wild over artificial pasturage. Catnip may not grow in other localities; and even if it did, it might fail to yield nectar. We know that in the East generally, for example alfalfa fails to yield any honey, although it can be grown successfully. I hope to see Dr. Gandy within the next few days, and look over his bees, his catnip-fields, and inquire more fully into his methods. From what I hear, I am inclined to think the soil and climate in and about Humboldt are peculiarly adapted to the growing of catnip.

#### THE HONEY MARKET.

THE facts are beginning to develop that there is really less of Eastern honey this year than last—at least we are not getting the offerings of a year ago at this time. Good lots of honey appear to be few and far between. There are a few choice lots in Western Colorado, but only a few. There is a little honey in Arizona.

I understand that some buyers are going through the West, particularly Colorado, circulating the report that there has been a big crop of honey secured in Southern California, and that there is also a big crop in the East. They report to you that so and so, a neighbor, has sold all his honey at a low figure (a very low price, of course), and that if you want to sell you had better sell right quick at what your neighbor closed out at, because there is going to be a slump in the market.

I hope our sensible readers will not be deluded by such barefaced lies as these.

Conditions may change slightly later.

#### IMPRESSIONS — THE TRUTH ABOUT THE WEST.

I HAVE wondered if, in my travels, I have been able to give a more correct view of conditions as they actually exist in the far West than some impressions that I have been able to gather from railroad folders and magazine articles. When, for example, I started for California I imagined it was a land of foliage, of luxuriant vegetation and tropical fruits—of mountain ranges and towering peaks; of verdant valleys and shady canyons. I did not dream, though, that it was also a land of deserts, of sand, of wastes, of uninviting solitudes where nothing can live but the jack-rabbit. Yet I suppose I am not far from the truth when I say that a large portion of the State is not subject to cultivation. Besides the mountainous portions there are vast areas of deserts, of unendurable heat, land so barren and dry that nothing but sage brush will grow on it. And yet there are beautiful localities there, and the stories told in ordinary magazine articles and in railroad folders are all true. But they do not tell *all* the truth. A friend of mine once said that, when he was going to Florida, he imagined we would see beautiful and luxuriant tropical vegetation—lakes and rivers, fine fishing, a balmy atmosphere; "but," said he, "when I got down there the impression that was uppermost in my mind was the great sand heaps, for the greater portion of the State is but little more than a mass of sand."

Now, dear reader, if I have given you the impression that the localities I visited are all lands of luxuriance and fertility, let me disabuse that impression at once. When I tell you that, in going from one locality to another, the railway often runs through hundreds of miles of desert, I am only telling you the literal truth.

Then perhaps I should say, also, that the hot winds off from these same hot deserts, so necessary to the growth of the tropical vegetation of which I have been speaking, are very depressing to those who are not used to them. I said to some of my friends, "I do not see how you stand it where it is so insufferably hot during a part of the year." I was met by the response, "We get used to it, and like it. We do not see how you stand it to be frozen up six months in the year, to have chills and colds. We do not see how you can live in a locality where for six months in the year you must live mainly indoors."

Referring to deserts, about the first introduction one gets in California, if he goes by the Southern Pacific, is an all-day ride through the desert. He suffers keenly from the heat. The hot blast through the car-windows is any thing but refreshing. The sand and grit are most distressing; and yet that is one's first impression of beautiful—*beautiful* California. As the day closes he begins to see wheat-fields; and it finally winds up with fast-fleeting orange-

groves on either side. If, the next day or two, he takes the train northward, he will leave these beautiful fields, and again into the desert he plunges—more hot winds, more sand and dust and grit. Ever and anon he will see a mirage, ever fleeting; now clear and distinct, now a haze.

Do you wonder that the best localities in the West have been "gobbled up" long ere this, and why it is that the settlers are crowded on comparatively small areas of ground? If, for example, some of the beekeepers in the vicinity of Hanford were to move north and south to get away from their pear-blighted neighbors, they probably would have to squat right down in the open desert. There's the pinch. If one desires to go to pastures new he may have to jump hundreds of miles ere he gets to another arable portion of land.

#### BRUSHED OR "SHOOK" SWARMS, BOARDMAN ON.

WHEN the August issue of the *Bee-keepers' Review* came to hand I eagerly scanned its pages, as I always do. My eyes stopped when I came across the heading, "Shook Swarms," or, as Dr. Miller prefers to call it, "brushed" swarms; and when I saw the writer was H. R. Boardman I thought "here is a man who certainly is conservative and careful. I never knew him to recommend a thing unless it had *real* merit;" and as I read it over I noted that he said, "*It is the only reliable method that we have found that would keep the swarming impulse under control, and also give satisfactory results in surplus.*" The italics in this case are mine. There are some other interesting things, but I have concluded I can do no better than to copy the article entire, with postscript:

When I had several out-apiaries to care for, and swarming became somewhat of a problem, I found it expedient to force the swarms by shaking the bees out into an empty hive on the old stand, with only starters in the frames, at a time when the honey-flow was good, and, after the queen had commenced laying, follow the swarm with the partly filled sections.

Swarms treated in this manner *can be trusted*, for a time, at least, and it is the only reliable method I have ever found that would keep the swarming impulse under control, and also give satisfactory results in surplus.

At the close of the season, if I do not wish for the increase, I unite the swarms thus divided, which I leave near together for that very purpose, by placing one hive over or upon the other, reserving the youngest or most desirable queen.

I use a deep frame which has a cross-bar in the middle, and this gives two places from which to build comb, instead of one, which is a decided advantage in starting.

I have used wired frames for this purpose, with good results, the wires running perpendicular. The combs will be built upon the wires in this manner with surprising nicety, many of them comparing favorably with those built upon foundation. From the samples of combs thus produced, I select the best for future use, and render the objectionable ones into wax. In this way I make wax production a source of profit.

For several years, in August, I moved about 100 colonies each year, about 12 miles, to the buckwheat fields on the prairie, and returned them later in the season. These colonies I treated in the same way, and thus saved hauling the stores back and forth, as well as keeping the buckwheat and late honey by itself.

We are having poor seasons for several years past, and there is much less swarming, hence these different

conditions have to be met by different methods; and I am not practicing this "shake-out" method as much as formerly.

I know no reason why it is not adapted to any locality or season in which the honey flow is reasonably good.

P. S.—In the last issue of *GLEANINGS* is an article on the "shake-out plan;" and I notice that the instruction is to shake out *every* bee from the old colony. I don't advise this; on the contrary, I advise, *by all means*, to leave bees enough to protect the hive until the brood has time to hatch; and especially take this precaution in out-yards when there will be no one to look after the bees. I had one very lively case of robbing, in an out-yard, by neglecting this precaution. I also close down the entrance very close. Sometimes I have closed it entirely with what I call a robber-guard until the bees get a little house-cleaning done, and have recovered from their panic and confusion.

H. R. B.

I presume Mr. Boardman certainly errs on the safe side when he counsels against shaking *all* the bees out; and yet I know my friend Vernon Burt has done this without any bad results; but what he may be able to do, others may not, without considerable loss in brood.

Dr. Miller strenuously objects to the use of the word "shook" when applied to swarms, as being ungrammatical and inelegant; but "shook" swarms are one thing and "brushed" swarms are another; and to my mind the word "shook," even though it be ungrammatical, implies a more violent jar of the frames than the word "shaken," which we both admit is grammatical and correct. No easy-going shaking will remove the bees from the frame, but a frame that has been "shook" in the manner that Stachelhausen refers to has been so *severely jarred* or *jounced* that every bee has lost its foothold before it knew what was up. In the case of these forced swarms it is sometimes best to brush only; but at other times one had better shake. If there is a lot of new honey in the combs, the brush must, of course, be used.

I asked Dr. Miller why it was that so good a thing should not have more recognition among the bee-keeping fraternity. He writes:

I think that the reason more has not been said about brushed swarms in this country is because it's nobody's baby, but a foundling, and I think its father was the late C. J. H. Gravenhorst, who called such a swarm a "fegling," which means a brushed thing, or, as you called it, a brushed swarm. It is only courtesy to him to give it the name he gave it (brushed swarm) rather than "shook" swarm.

Well, now, say: If the brushed or "shook" swarm (beg pardon, Dr. Miller) is what some good men claim it to be, it is the biggest thing, in my estimation, that has been brought before the bee-keeping public in the last year or two. If it does not receive greater meads of praise than it has, it will not be the fault of *GLEANINGS*.

I should like to hear from every one of our subscribers or readers who has had any experience with it. To be able to control swarming with small brood-chambers—force the swarms artificially at our convenience—and to force them into the supers, and to increase our surplus, and to be able to dispense with an attendant at outyards during swarming time—why, it is almost too good to believe. Let us know all about it.





### QUEEN-REARING.

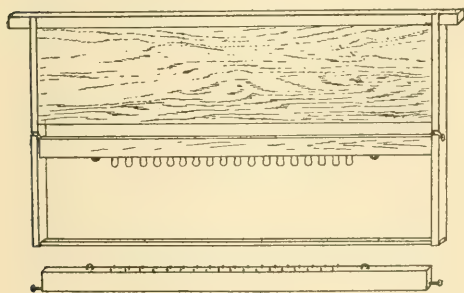
#### The Cell-bar and Frame.

BY W. H. PRIDGEN.

There is no advantage whatever in having comb in the frame with the queen-cells, while, on the other hand, the practice is attended with many disadvantages, the greatest being the attraction of robbers while it is being handled about the apiary, and the inconvenience of handling the frame generally.

The illustration makes a convenient and substantial frame so plain that no description is necessary, the slots in the end-bars of the frame,  $\frac{1}{2}$  inch below the board in the frame, are to admit of the easy removal of the cell-bar without mashing bees when the frame is covered with them.

The bar is  $\frac{1}{8} \times \frac{3}{8}$  inch, and is hung in the slots in the frame by a round nail at

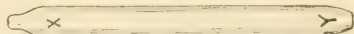


each end, which is driven into the center of the upper edge so it will hang with the brads to which the cups are attached down, and not be liable to turn to one side and cause the cells to be built crooked, or to be mutilated while being inserted between the combs.

By this arrangement the frame can be placed on its side, the cups attached, and the transfer of larvæ made without removing the bar from the frame, though this work can be more conveniently done by removing the bar. Nevertheless, it is better to have the bar pivoted for the purpose of making examinations, etc., rather than have it arranged so it can not be turned in the frame. The brads are driven in one of the  $\frac{1}{8}$ -inch sides of the bar in pairs, equal distance from the edges, and  $\frac{3}{8}$  inch from pair to pair, for the convenient adjustment of a nursery that will be explained later. The little staples driven one inch from the

end pairs of the brads being for the attachment of the nursery.

The queen-cups are attached to the bar by using a forming or dipping stick like



the end marked X in the illustration. By inserting the stick into the cup, grasping the base of the cup with the thumb and index finger of the left hand, and pressing it down on the brads with the stick and left hand at the same time, to be held in place with the fingers while the stick is being removed, and they are ready for the transfer of the larvæ to be made.

With this arrangement the queen-cups can be kept from the dust in bulk, and are not injured by age, besides admitting of the easy and convenient removal of the ripe cells or the adjustment of the nursery, removal of cups not accepted, and adding those of the same age from other batches, etc. The end of this illustration, marked V, gives a better idea of the correct shape of the transfer-stick.



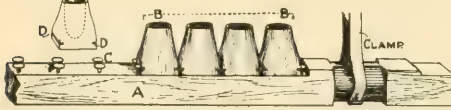
FIG. 2.

BAR FOR ALLEY STRIPS.

This bar is constructed for the use of Alley strips instead of dipped cups, and removes the objection of having to have melted wax to attach the strips to the bar. When the two pieces are clamped together they fit at the top and form a V-shaped groove at the bottom, which clamps the upper edge of the strip of comb tightly, and leaves the bottom of the cells the natural shape. Instead of clamping the comb by sliding the clamp in from the top as per the illustration, it is better to use a thin metal button screwed to the main bar, and have the ends of the short piece square. Then the strips of comb can be adjusted on the bar, the clamp or short piece pressed down on them, and the buttons adjusted at each end to hold all in place.

We can not get strips of comb long enough, containing larvæ of the proper age, from end to end, to make a whole batch; but it can be cut as recommended by Mr. Alley, and the ends placed together. By paying attention to the number of cells to each strip, and making the joints come between the points at which cells are wanted, and destroying two larvæ, and leaving one instead of each alternate one, as does Mr. Alley, the cells will be nearer the correct distance apart, and will admit of the use of the same nursery used with queen-cups placed  $\frac{3}{8}$  inch apart, besides being more easily separated, when given to nuclei. The use of these strips is attended with the difficulty of getting strips of any great length with the eggs or larvæ of the same age, unless the breeding-queen is kept in a nucleus of small combs, or kept crowded for laying room and empty clean combs be given at the right time to have the eggs or brood ready when wanted. And, besides,

much larger pieces of comb have to be used in preparing a batch than is the case when the cocoons are transferred.



WOODEN CUPS.

A, cell-bar; B, B, cell-blocks; D, D, sawkerfs, or slots; C, flat-headed tacks.

These cups should be made of hard wood, and polished inside; and by dipping them in melted wax until the inside is coated they can be used for the transfer of larvæ without cocoons, and will be accepted and the cells completed.

It is claimed that the ripe cells built out from blocks are more readily accepted when given to bees unprotected, which, no doubt, is due to the fact that they can be separated and inserted between the combs without any disfiguration of any of the work done by the bees, rather than affording protection to the portion of the cells on which the attack is usually made.

By having the holes in the blocks large enough, plugs of wax can be used, and the cups formed by pressing forming-sticks into them while the wax is soft, and make sinks or contracted bases for the transfer of the cocoon; but they do not equal the dipped cups for this purpose, as there is little or no elasticity about them. Every thing considered, there is nothing yet devised that equals the dipped cups for the reception of larvæ; and this illustration is given to meet a possible demand for an arrangement for the use of blocks that are conveniently attachable and detachable, besides being adjustable to the whole system here given.

The clamp here shown for the adjustment of a nursery, when one so desires, has been superseded by the hook and-staple-arrangement shown in the other pictures.

#### TESTING THE SWARTHMORE NUCLEUS-BOXES.

##### A Later Form of the Swarthmore Queen-mating Boxes.

BY FR. GREINER.

*Mr. Editor:*—In an article I wrote last winter for your journal I made the statement that the costly part of queen-rearing was the maintaining of nucleus colonies; that I had tried some different methods to cheapen the cost, also the Swarthmore method, but that I had not found any thing more satisfactory than the regular nucleus plan, using the ordinary brood-frame as used in the apiary. A description of the Swarthmore method may be found in this journal for 1901 and in the *American Bee Journal*, same year. Myself and others followed the instructions given, but it seems we failed in making it work to our satisfaction. It seems even Swarthmore has come

to the conclusion that the plan he then advocated was not a success. However, in a private letter Mr. Pratt wrote me early in the spring he said that he still thought it practical to use a handful of bees for our purpose rather than be to the expense of keeping strong nuclei, and he induced me to give his improved plan an impartial trial. I have done so. His improved method differs in several ways from the one described last year. He now uses two  $4\frac{1}{4} \times 4\frac{1}{4}$  frames for his miniature nuclei. Formerly he used but one. Then the little hives are set up separately, and with ample space between them to prevent the bees from running together and to make it practical to feed the colonies when necessary. Mr. Pratt has also devised some means to stock up his nuclei with bees. This is a success, and is very handy. He will undoubtedly speak about this himself.

The season during June was very unfavorable here for queen-rearing on account of continuous rain, and I did not deem it best to do any thing in that line till July. When my queen-cells were ready, behold, the honey season was already at an end. I anticipated trouble in the line of robbing when setting up the little nuclei, but every thing went lovely. Ten of the twelve nuclei pulled through in good order. The other two might have been made a success with a little more watchfulness and stocking up again with bees. These things have to be learned. Next time I shall know more about it. From the ten successful little hives I took eight queens. Two lost theirs on the mating-trip or otherwise, and were again supplied with cells or young virgins. For an experiment I am allowing one of the nuclei to rear a queen from the brood of their removed mother, to see what such a queen will amount to, and I may speak of this at some future time.

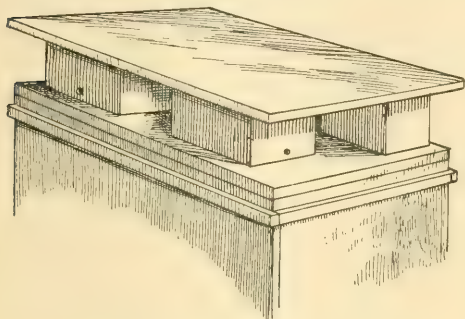
In justice to Mr. Pratt I feel that I should report my trial to the readers of this journal. I am of the opinion that the Swarthmore method is practical during the warmer part of the season at least. It may involve a little more trouble, require more watchfulness, and some feeding and restocking of the nuclei if they should run low in bees at any time. But when it is possible, by breaking up one colony to form fifty nuclei instead of the usual five, there occurs quite a saving which is well worth looking after.

It is evident that all queen-cells must be built and kept in strong colonies till the queens have emerged, or about that time. I have noticed that when queen-cells at the critical time have been allowed to become chilled they may hatch; but the resulting queens will usually have crippled or deformed wings. This is obvious when we consider that the wings of the insect are developed at the last end of the pupa stage, and when a cell at this period becomes cold the development is interrupted, and seems to result in deformed wings.

In stocking up Swarthmore nucleus-box-



es I have used bees from an outyard as well as bees from queenless colonies of the same yard. I have had good success with both. Theoretically, bees from outyards would be preferable. Swarthmore's device for stocking up nuclei answers nicely for bringing bees from an outyard as well as for the purpose they are intended. Whether queens mated while in these miniature nucleus hives are as good in every respect, as prolific and long-lived, as are others kept in full colonies from beginning to end, we shall have to find out.



SWARTHMORE QUEEN-MATING BOXES.

Mr. Pratt instructs us to paint the little boxes so as to withstand the weather; but they are hardly suited for exposure in this way. My drawing illustrates how I have set up four nuclei on top of an old discarded box hive by the board fence at one side of my home yard, covering and protecting them with a water-proof shade-board. In an exposed locality the board must be well weighted down.

Four nuclei may be placed inside of an empty hive-body. Each little colony may thus fly from a different side. When a hive-body is thus used the boxes need not be painted, the cover giving perfect protection. Inside of the hive, feeding is safe and handy. A piece of drone comb may be made to answer for a feeder. I place it on the top of each box, filled with syrup, and remove the stopper from the hole in the center of the top. This hole is not only intended to place the feeder thereon; but principally for the reception of a queen-cell.

The introduction of virgin queens or cells is much safer with those miniature colonies than with full-sized ones, and may be practiced almost immediately after removal of a fertile queen, without risk.

Naples, N. Y., Aug. 11.

[I sincerely hope that the plan may be made a success. Swarthmore's latest plan will certainly give better results than his first one; but even such a one as you describe, I am rather of the opinion, would require an expert to make it work. Our own experience and the reports we have had of these little one, two, and three section-comb mating-boxes has not been very reassuring. We get the best results with

two full-sized frames, in a compartment over a strong colony, with wire cloth between the upper and lower stories. Three such compartments are used in each upper story with entrances pointing in three different directions.—Ed.]

#### GOVERNMENT AID TO BEE-KEEPERS.

A Little Interesting History; Some Good Suggestions from a Man who has been Connected with Government Work for Some Years.

BY W. K. MORRISON.

Prof. Benton deserves a vote of thanks for calling attention to the work the government of the United States is doing for bee-keeping. The impression is general that the Department of Agriculture has failed to assist apiculture to a degree worth consideration, hence it has come about that very few look for light or help in that quarter. In one respect Prof. Benton's experience is different from mine—that is, with reference to the voting of money for the work of the Division of Apiculture. I found no difficulty whatever in inducing the government to make an appropriation, and there was not the slightest objection to the money being voted—rather, it seemed to me, that twice the sum first voted would have been allowed had there been any need for it; and I believe if good reasons were advanced for it Congress would vote a pretty large sum to assist the bee-keeping industry of the country. I well recollect the remarks of the Congressmen when the first appropriation was slated by Secretary Rusk. They were unanimous in demanding that the money be spent in *practical* experiments only. They did not want the money spent in going around the country collecting wild bees and then determining their species. Prof. Riley took umbrage at this; but Secretary Rusk promised the leading "agricultural" Senators that the money would be spent only on practical work. It may interest Colorado and Kansas bee-keepers to learn that Senator Teller and the late Senator Plumb were the sponsors for the first appropriation; and had they been bee-keepers these gentlemen could hardly have been more enthusiastic in the matter. Of course, Secretary Rusk was very willing to assist us, and it was his intention to increase the annual appropriation as the situation might warrant it. He was then spending a large sum of money on silk culture, and it was no trouble for me to show him that bee-keeping, a far more important industry, was not allowed a penny. I hope the apiculturists of Wisconsin duly revere the great Secretary's memory. In my conversations with Senators and Representatives I gathered the impression that they would always be liberal with the bee-keepers; and, though some of them are now dead and others have retired to private life, I believe this sentiment

skill largely prevails at the national capital.

The great trouble is, to get men capable of conducting experiments sufficiently important and far-reaching to command national attention. It is not easy to find men like Reaumur, Huber, Langstroth, or Dzierzon; and it's the same in every industry. Some few heaven-born geniuses tower over all the rest of the plodding workers. Such men are not made to order, and in many cases they meet with obstacles erected by the very men they have labored to benefit. Nor is it always convenient for men of genius to work under government surveillance. They would feel "curbed, cabined, and confined." The United States abounds with agricultural experiment stations; but I do no injustice to any of them when I say they possess no such original geniuses as Burbank, of California, and Messrs. Munson and Stringfellow, of Texas—men who have had no government aid whatever to help them on. It is practically the same in most industries.

There is one nation, however, that has made a great success of giving government aid to original investigators. That country is Germany, and her success has stimulated others to emulation. But I am not aware they have succeeded very well. The Germans have been singularly successful in selecting the right man for the work; and, having found the right man, leaving him to work out every problem in his own peculiar way, not hampering him with "instructions." Most of this (not all) original work has been done in connection with the great German universities where an eminently broad and free system of pursuing knowledge prevails. The result has been to place the whole world of science a debtor to Germany.

Frequently we see requests for the State experiment stations to take up bee-keeping problems. It does not seem to me this is a very desirable thing to do; for unless the investigations were conducted by thorough bee-masters the experiments would hardly prove any thing, except that the experimenters did not understand their business. We must be careful about encouraging this sort of thing.

I well recollect the chastisement dealt out by Mr. E. O. Rossele, the well-known poultryman, to some experiment stations who had attempted to deal with poultry problems without first securing the services of an expert poultry genius. He simply "rid-dled" the experiments as published. And it is very easy to do a great deal of damage to an industry by giving out false reports, especially if covered with the official seal of the government. The reason why the "comb-honey lie" took so well with the public was that it emanated from the Department of Agriculture at Washington. That gave it respectability, and it has gone on its perfidious mission for a quarter of a century, doing great damage to honey-producers. Quite recently *Nature*, the great

English scientific journal, devoted a paragraph to "the comb-honey lie," and so also the very reliable *Chambers' Journal*, all in the interests of science, no doubt. The reader can readily perceive that government aid to bee-keeping might easily prove a positive detriment to the honey-producers who try to make a living from their apiaries.

Truly, there is no lack of work for a really clever experimenter; in point of fact, the work before us to be solved is so vast that it requires great courage to start work on much raw material. To give an idea of what I regard as a truly rational subject for research I offer two problems as samples:

1. What can be done to render the California crop more certain?
2. How provide a substitute for alfalfa in Colorado, should this crop become unreliable?

It would take a long time and much money, perhaps, to conduct such researches; but both the time and the money would be well spent if success attended the efforts.

One of the things that has operated against the advance of government apicultural experiments is what I may term the *Apis dorsata* fad. It seems to me that some bee-keepers thought if they had this giant bee they would be all right for this life at least. In my opinion there are other problems much more important lying right around us—not that I do not believe in domesticating new bees, but there are other fine bees besides *Apis dorsata*. Had the proposition been to tame some of the stingless bees I could have understood their enthusiasm. I need not enumerate or even attempt to begin to mention the problems up for solution, because, if a man is capable of experimental research, he will discover plenty of problems awaiting his attention. We want a Faraday in bee-keeping. If we can find such a one, by all means let the government of some State support him, and let bee-keepers help all they can. There is plenty of work for him to do.

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#### GETTING BEES OUT OF SUPERS.

The Bee-escape Plan; the Shook, Brushed, and Smoke Plan, and a More Rational Way.

BY S. T. PETTIT.

*Mr. Root:*—I notice on page 136, last edition of A B C book, that you still adhere to the old way of taking combs from the bees for extracting; that is, by smoke, shake, and immediate brushing. But you give preference to the bee-escape, which, may be, is all right for removing supers at the close of the season; but for the following reasons I would not use them during the honey-flow:

First, in a honey-flow the bees work in the hive all night at evaporating and curing the honey; but just as soon as the bee-es-



cape is in place, at once all work in the super stops; and instead of the curing process going on, the honey, from the breath of the bees in that closed-up super, grows thinner.

Second. The consequent congested condition of the brood-chamber for 12 hours or more has, I believe, a strong tendency to create a swarming fever.

Third. In many places the honey would be too cold for the best work. You have to smoke to put on the escapes, and you have to smoke to take them off. I take out the combs and replace with empty ones generally, with but one smoking, and never anger nor worry the bees at all. More of this later on. Your method as figured on said page, to put it candidly and courteously, is barbarous.

Let's consider it for a moment, bearing in mind all the while that the bee is a frail, sensitive, and nervous little creature, capable of suffering intense mental and physical pain, whose rage under continued provocation is terrible, and it is endowed with an indomitable determination, to the death, against all odds, to defend its mother and home. Their apparent ill nature and crossness are always in self-defense; they never pick a quarrel for the sake of it. Bad treatment is largely responsible.

Well, you smoke the bees, then pull out one comb, give it a rapid shaking motion in front of the entrance, then on top of the frames you brush off the remaining bees. Then the next comb is pulled out; but instead of being shaken in front of the hive you shake it in the hive. The remaining bees are then dislodged with the brush in the hive and on top of the combs, and so on to the last comb.

Now, what has come to pass during this process? Some of these same bees have been pulled up, shaken, and brushed off again and again, and nearly suffocated with smoke repeatedly; and all the time their combs and stores are disappearing. The process is surely most exasperating. When I used the same practice their sufferings used to pain my heart, and their stings pained me elsewhere; but what could I do? I knew of no better way. I could not believe that God ever meant that *that* sort of fight and enmity should exist between man and his dumb friends; and I am glad to say that some thinking and reasoning to devise a better way was rewarded by a short, simple, humane plan which I have practiced for years with entire satisfaction. Here is the plan:

On a wheelbarrow is placed a comb-box filled with empty combs and covered with a wet cloth if robbers are bad. In a good flow no cloth is needed. First, I blow a little smoke into the entrance, but not enough to cause the bees to run up. Then I smoke and flap the cloth rapidly and alternately; continue to flap and smoke sufficiently to cause most of the bees to run down out of the super. Now work rapidly, and remove the combs quickly; don't be

afraid of disturbing the bees. Shake each comb at the entrance except the last one, which may be shaken inside. Lean the combs against the back of the hive or any convenient thing.

Now that the super is empty, grab the empty combs, several at a time, and drop them quickly into the super and close the hive at once before the bees return to the super. Next brush the bees from the combs and drop them into the comb-box. While brushing the bees from the combs I commonly rest them on top of the hive-cover and brush most of the bees right on top of the hive. Brush quickly and lightly. Don't hurt them with the brush—just a light sweeping and they roll off, and not a bee will show resentment.

I find a great improvement in the temper and general behavior of my bees through the use of the above plan. I am persuaded that they neither fear nor hate me, as they seemingly did under the common practice. Any way, they treat me well, and I know I love them more.

The whole secret is in the fright and surprise played upon them, coupled with the quickness with which the work is done, without arousing their anger by immediate brushing and bruising.

If the bees left on the combs after shaking have not been hurt, 15 seconds out of the hive, provided there be neither queen nor brood present, takes all the fight out of them.

If there are no other bees to interfere I can, without hat or veil, perform the operation in so incredibly a short space of time that perhaps I'd better not give it. There is exhilaration in that kind of work. It is a revolution in that department of labor. It has converted a painful necessity into a pleasant piece of work.

#### NOTES.

1. I gave this plan to the Ontario Oxford Bee-keepers' Association several years ago.

2. For taking off comb honey, and sometimes for taking combs for extracting, I place on the hive an inverted box about 2 inches deep, and of the size of the hive, which has a hole in each side for inserting the nose of the smoker. Buttons are placed so as to drop over the hole not in use. The invention is not mine.

3. If the super contains more than eight combs you may find it advantageous to drop in some empty combs when half or more filled ones are out.

4. To prevent crushing bees, and for convenience, it is a good plan to have a few light pieces of boards with two cross-pieces nailed on each, in different parts of the yard. On these the combs can be set when taken out of the hive.

5. Bruised and angered bees dropping back into the hive arouse the rage and resentment of the whole colony.

Aylmer W., Ont., Can.

[Why, friend Pettit, your method of getting bees out of supers is just the same as that used successfully by Mr. W. L. Coggs-shall, of West Groton, N. Y., for many years; but I first got track of it when I visited him in 1897; but it was not until March of the following year that I described this method of snuffing smoke down into the hive by means of flipping and flopping of quilts—see page 173 of this journal for 1898. The fact was, I intended to describe this exact method in our A B C of Bee Culture, and now discover I left out the important part of it—that of flipping or flopping a cloth to drive the bees downward into the box below or into the brood-nest.]

But the bee-escape can be employed to good advantage, even during the height of the honey-flow, and yet in no way interfere with work in the supers. If there are two or three supers on the hive already, and the combs are sealed in the upper one, there will be no interruption in the process of ripening, for the bees will go down into the super next below. Of course, if only one super be put on the hive at a time, it might cause a slight interruption, as you suggest; but even then the interruption would be less than when the smoke in connection with the flopping of the cloth is used.

There are methods that are barbarous for getting bees out of the supers; and while the description I gave may possibly seem barbarous, yet I never thought that I was treating the bees cruelly when I practiced the plan, for I do not believe in torturing the bees with smoke. Smoke properly used will drive; but improperly used it will suffocate, and only cause the bees to cling to the combs the tighter, and at times to uncup sections that are perfect.

I will not pretend to say whether Mr. Coggs-shall was prior to you in this method of getting bees out of supers or not; but he had used it many years when he showed to me the plan right in his own apiaries, in 1897. I suspect that bee-keepers have not made enough use of it. When the bee-escape can not be used, the plan can be adopted with very good results.—Ed.]

### BIG HUM BEE.

BY ALBERT D. WARNER.

Now, personally, Big Hum was the largest bee in the grove. In flight he was powerful, and in voice great. He was, likewise, superb in the estimation of the queens, and loved their company. Big Hum meditated on the diversified conditions of life, and was particularly hostile to the bipeds who so often pestered him and his companions. News of the writings of these high-legged beasts, as he called them, came to his ears; and so, procuring some of the bee-papers, he perused the same. Big Hum was much disgusted at what the bipeds claimed to know concerning the ways of his tribe; but what he knew they did not know, and uttered the following line of hums,

which, striking the drums of a passer-by, were productive of the following:

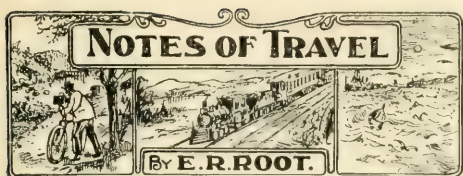
"I am a big full-grown bee, and should, under ordinary circumstances, know the ways of bees and their modes of life; therefore be it known to man, the biped, and bee, I henceforth say that, if I have the true knowledge of bees and the secrets of their living, then the contradictory, misleading, unsatisfactory, pig-headed, boiled-brained, fandangled set of supposed facts are not according to the truth, though, giving the pesty and troublesome men their due, I say they have conscientiously tried to get at the facts; but through the temptations of those who think they have no limit, and those who acknowledge bounds, the faults in their doctrine have come. If they are right, then I'm a liar. I, Big Hum Bee, am a liar, a clear-cut side-tracker.

"Let me tell you, friend biped, who walk near, you may think that those animals of your kind know all that is known, but you err. Ped No. 1 says a small hive of such and such shape fits us best, while ped No. 2 says one of another size and shape is proper for the honey-bee. You fight, you scramble, you tell friendly lies, and you multiply many things from nothing. But you know something concerning us, after all, and you honestly try to know more; but you have a long way to travel to learn the full mystery of the hive.

"You wag your tongue to a great degree over the traits and want of traits of the queen. She comes in for numerous humanized statements, lies, and close-cut truths. I, the pa of the honey-gatherers, do not receive full notice of my value. Big Hum Bees are not much studied in your work and word. Nevertheless, it is he who is of much more importance than you think. It is true, he does not sting you, though he would if he could.

"Let me inform you that, for many eggs, for many bees, for much honey, and for little swarming, you must have big hives. Big houses, I say, hold many goods; and those bipeds who expect to get a ton of honey from a thimble will fail to realize on the theory. Queens lay their eggs in cells. Many cells are necessary for many bees. The biped who expects to get 75,000 bees from 20,000 cells is miscalculating conditions. Where there is no place for the rearing of many bees, there will not be many bees, regardless of the theoretical manufactory notions of many bee-experts. The secret, Mr. Biped, of much honey is—*many bees*. The condition for many bees is—*cells*. The conditions necessary for many cells are—*large hives*. Unless they are to be glued on the outside, which would be very doubtful doings, get the large hives. A few years and the eight-frame common-depth hive will be relegated to the *gone* or to the apiaries of biped owners whose bees are expected to appear spiritualistically, and not from the common every-day method of eggs and brood-chamber. Good by, Mr. Biped. Shall I hum again?"



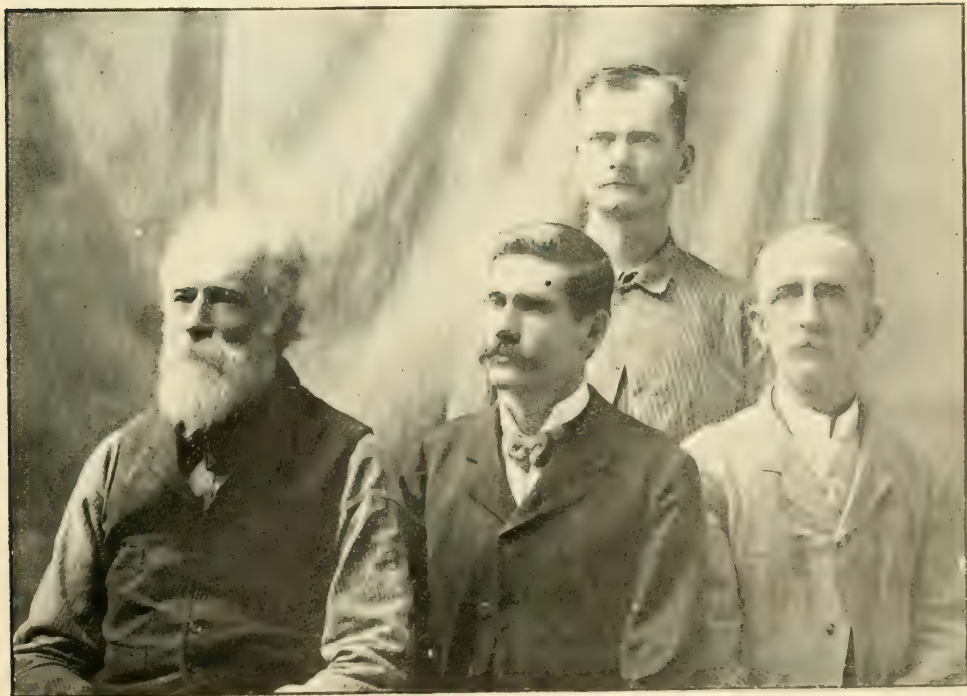


THE SERIOUS SITUATION IN THE REGION OF  
THE BLIGHTED PEAR-ORCHARDS.

Something over a year ago I wrote up the situation regarding the pear-blight, and the possible relation of the bees to it. While it was not shown perhaps that the bees were entirely innocent, there were many circumstances that seemed to indicate that the spread of the blight was due to conditions beyond the control of any bee-keeper or any living man in the vicinity. The most that the bee-keepers were prepared to admit was that the bees *might* help in spreading the virus of the pear-blight, and even the conservative pear-men themselves appeared inclined to the view that their removal would do little more than mitigate the trouble. The more rabid of the fruit-men seemed to be of the opinion that all the bees should be banished from the county, and talked "poison," "law," and "the courts." Such rabid sentiments I am pleased to say did not emanate from

the *extensive* pear-growers but from the little small-minded dozen-tree growers.

There are bee-keepers who have considerable holdings in bees; and if they are compelled to move to another locality there will be the expense of moving as well as the more serious problem of finding other good bee localities remote from other bee-keepers. I doubt very much whether any one in the vicinity of the pear-orchards could move his bees to any unoccupied territory within a radius of two or three hundred miles in which he could make a fair living. As I have before explained, the good bee locations are so thoroughly taken up throughout almost the entire State of California—a State that has an area equal to two and half times that of the *whole* of New England—that if one has to move out he will have to give up the business and sacrifice hundreds and perhaps thousands of dollars invested in bees, hives, extractors, buildings, and general equipment. This is the situation that confronts some well-to-do bee-men within a few miles of the pear-orchards. So far as I have talked with the bee-men, they are willing to move their bees or quit the business, *providing* it can be proven that the bee business is of less importance than the growing of pears, and providing it is further proven that the removal of the bees under domestication and under the control of man would afford the



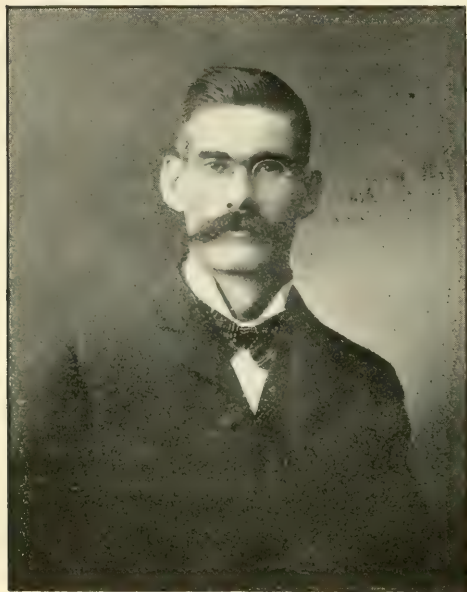
J. F. Flory.

F. E. Brown.

Fred M. Hart.

FIG. 1.—THE COMMITTEE APPOINTED BY THE BEE-MEN TO MEET WITH A SIMILAR COMMITTEE FROM THE PEAR-MEN.

expected relief. If I am not mistaken, the bee-men were in the locality before the pear-men, and they have just as good a



F. E. BROWN, PRES. OF THE CENTRAL CALIFORNIA BEE-KEEPERS' ASSOCIATION.

right to make a living there as their neighbors engaged in a different occupation. If the question does come before the courts, there will be some fine points involved.

I was assured, while on the ground, that the pear-blight is something that comes and goes in spite of the bees. This admission was made by some of the fair-minded pear-men. If that be the case, the terrible blight that has devastated the vicinity of some of the best-bearing trees will disappear of its own accord, and in the course of a few years these conflicting relations between the two industries will be forgotten.

I am glad to introduce to you to-day some of the representative bee-men around Hanford. I was not able to see all of them by considerable. Those that I did have a conference with constituted a committee appointed by the Central California State Bee-keepers' Association to meet a committee appointed by the fruit-men to devise ways and means whereby the conflicting interests could be harmonized. First I will introduce to you Mr. F. E. Brown, son-in-law of the pioneer bee-keeper J. F. Flory, and President of the Central California Bee-keepers' Association. He has been engaged in bee-keeping for many years, and has been identified during that time with various business interests. He is disposed to be fair, and willing to consider any reasonable proposition that may be made; and yet he is one of those chaps who will "fight to the last ditch" when he feels that the

bees have been maligned and condemned in a wholesale way.

In Fig. 1 I show Mr. F. E. Brown and the part of the committee that was appointed to meet a similar committee from the pear-growers. Mr. J. F. Flory I referred to in our last issue.

Mr. Fred M. Hart is a bee-keeper who is perhaps as extensively engaged in the business as any one in the vicinity of the pear-orchards. He has a beautiful home and a delightful family, and I had the pleasure of staying over night with him.

The next morning, after breakfast, I got the family out in the yard and suggested that they group together, rough and ready, that I might get their picture. This they kindly consented to do, from the youngest to the oldest. See cut below.

The other gentleman shown in the largest group, Fig. 1, is one whose name I do not seem to have on my note-book or else I should be glad to introduce him also.

#### BEES AND ALMOND-GROWING; STICKING TO THE BEES.

Let us now leave Hanford and take a jump northward through the deserts into the region of Newman, Cal., where resides a son of Mr. J. F. Flory, Isaac D. Flory. The senior Flory's sons were all trained to the bee business. Two of them are quite extensively engaged in the industry, particu-



F. M. HART AND FAMILY.

larly Mr. J. H. Flory, of Dos Palos, who has 1200 colonies. I stopped at Newman, as I had had some correspondence with Mr. I. D. Flory, and desired to finish up the



business then in hand. He left home, as he said, barefooted, and, without any thing, struck out northward for himself in search of good bee localities, and he found them. He began with a hundred colonies of bees,



I. D. FLORY AND FAMILY.

and with these he has been able to accomplish some quite remarkable results. At first things began to look discouraging, and his wife advised him to work out by the day, as she did not see *how* he could make a living from his *bees*. But Mr. Flory, following the advice of his old father, stuck to the bees, and, as a result, the first year he made \$800 clear of all expenses; the next year, between \$1000 and \$1200. Each following year he did better; and his big season was when he filled two cars with honey, or the equivalent of \$2500 worth.

Now, then, what have his bees done for him? They have enabled him to buy and pay for 50 acres of fine land worth \$100 an acre. Twenty acres of this he has devoted to the growing of almonds; and, by the way, he thinks almond-growing very well adapted to go in connection with bees. In the growing of fruit one has to stop and pick it and dry it and pack it, and this all comes just when the bees require the most attention. There is a good market for almonds, and the harvesting of that crop comes when work is slack with bees.

In connection with almond-growing and bee-keeping he has 15 cows and 25 head of young cattle. He was once a devotee of the Belgian-hare fad, and he showed me some quite extensive hutches he constructed; and now, as with nearly every one else who has been in the business, he has only a few blooded animals on hand. Asked why the growing of Belgian hares was unprofitable, and had been so generally abandoned, he said that the business had been fearfully overdone, and that too much attention has been given to the growing of blooded stock. Like every thing else, he thought the business would seek its level, and the growing of Belgian hares would again be a fairly profitable industry.

Just before leaving, and I stopped between trains, I requested the privilege of taking a snap shot of the family, and here it is as reproduced from the pocket kodak. We had just come from the bee-yard, and the senior Flory had not removed his veil. The little boy, perhaps eight or nine years old, seemed to be absolutely fearless in the presence of the bees.

#### RAMBLE 209.

##### A Trip to Catalina.

BY RAMBLER.

On the 21st of December, W. W. Somerford cordially invited me to take a little wheel journey with him to Catalina, 50 miles to the south, to see the country and visit his brother Fred. I accepted the invitation with alacrity, and we were off.

Mr. Somerford had his eyes open for apiaries on the way, and Juan Remillo, a Cuban, ten kilometers from Havana, had 400 colonies, and had taken 800 gallons of honey, and complained that the season was not a good one. After we got under way again I told Mr. S. that it was a good plan not to complain until the close of the season, and even then it was better to take the season as it was given, for complaint would never add a pound of honey to the bocoy.

At the little pueblo of San Jose, Mr. S. had such a strong desire for dinner that we sought a *fonda* for the same. A *fonda* is where they feed people and sometimes sleep them. A *fonda* has a broad veranda in front of it, with a stone floor, and usually several saddle horses are tied here. In the interior, one end of the large room is used for the sale of groceries. In the other end, perhaps, there is a billiard-table. In the vacant spaces are several round tables. You seat yourself, and order either drinks or eatables. If you want either wine or beer or *aguardente*, it is supplied. Mr. S. and I being both temperately inclined, ordered the eatables. The outside doors to these *fondas* are large and numerous, and dogs sit expectantly around waiting for stray crumbs. While eating our dinner two men brushed past us, carrying a half-

grown pig between them with its feet tied to a pole, and squealing for dear life. After the swinette band had passed we finished our dinner in peace.

This calzada from Havana to Guines is even better than the one west from Havana.



PALM-SHEDS AND HONEY-HOUSE OUT-APIARY.

There is not so much heavy travel upon it, and we were happy in having a stiff breeze at our backs; and, just to see what we could do, now and then we made a kilometer in two minutes. This calzada is also shaded by avenues of large trees. The laurel prevails, and now and then a ceiba, the largest tree I have seen on this end of the island.

Every thing went happily until we reached Guines and the end of the calzada. Here we found nine miles of road, and the contrast was almost great enough to break your heart.

We found Senior Frederico, as he is called here, living in the suburbs of the little town of Catalina. Its chief features are palm houses, thatched roofs, and a railroad. Senior Fred lives in single blessedness, and has a Cuban lad of about 15 for a cook, and he served our meals in good style—considering. Senior Fred owns a caballeria of land, and leases several hundred acres for cattle and hog pasturage. At the time of our visit he had 700 colonies of bees in three apiaries. He practically controls all of the honey pasturage round about Catalina. He thought he would increase his colonies up to 1000 and then stop. A greater number, with the attendant increase of apiaries, would be too much to attend to, and he

would have to depend too much upon hired help.

I found there was a brotherly disagreement upon this point as well as upon several others. While W. W. wishes to increase to as grand a degree as the heavens and earth would allow, Senior Fred set himself to a limit.

While W. W. prefers the ten-frame hive, Senior Fred prefers and uses the eight-frame. He reasons that the honey comes during the winter, during the coldest weather and shortest days. A eight-frame hive holds the heat, and the bees fill their hives and ripen their honey better. He has no place for Jumbo hives; has one in his home apiary on trial, and that is one too many.

When Senior Fred starts an apiary, the first consideration is a good palm shed for shade and shelter. Such sheds as are shown in the photos cost about \$1.00 a yard. Corrugated iron costs one-third more, and not so cool. During the rainy season they protect the operator if he desires to examine colonies. They are a further benefit to

operator and bees during the heated term. These sheds are so thoroughly constructed that no light enters except under the eaves; and it is so shady behind the hives that a veil is dispensed with in the manipulation.

W. W. advocates and uses the Cowan four-frame extractor. Senior Fred uses the two-frame in all of his apiaries. He has used the four and six frame extractor thoroughly during the past twelve years, and has settled, to his own satisfaction, that the



PALM SHED, INTERIOR.



two-frame machine is easier to work and just as rapid. Two of his Cuban boys will easily take 150 gallons in a day with it.

While W. W. makes a pretense of straining his honey before it enters the barrel,



THE HOME APIARY.

Senior Fred has a very efficient close-mesh wire-cloth strainer in the bottom of a large tub. The honey must all go through that tub and strainer, and I admire that way of doing business.

His idea of a honey yield in a good season is 23 bocoys to the 100 colonies. According to that his 700 colonies should produce 161 bocoys; or Mr. Moe's 600 should have produced 148 instead of 73. The bee-keeper who wishes to attain to great things must put his mark high. Even 148 bocoys to 600 colonies is not greater than has been done in California; and with every thing favorable it ought to be done in Cuba. Seeing that I am now a Cuban bee-keeper I will take Senior Fred's figures for a guide, and get there with him if I can.

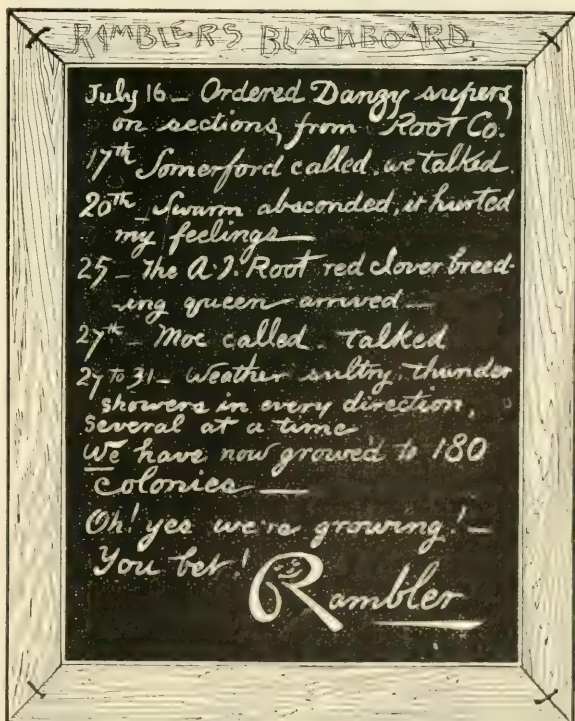
There is no calzada here, but the rudest of roads. Such a one we followed to Senior Fred's out-apiary. On the way we visited a cave of good proportions, for we were in a limestone region. Some of these caves are rich in bat manure, and the American gardener is not slow to utilize it.

All teaming is done on these roads with oxen, and mules are used under the saddle. The wheel is of little use, and can not be used at all in the rainy season. When you see ruts two feet deep in a road in dry

weather, it is some indication of what prevails in the wet season. But the Cuban with his oxen and carreta will get over them. When hauling honey from these out-apiaries, three yoke of oxen are used—two near the carreta and the third at the end of a rope 40 feet ahead of the others. The philosophy of this arrangement is that, if the rear teams are deep in the mud, the yoke, 40 feet ahead, will be on firm ground, or can be guided out one side or the other to solid ground, and their pull materially helps the rear teams; or in going uphill the head team at the top exerts a greater pull than both teams further down.

Senior Fred said these Cuban ox-drivers could give some pointers to any ox-managers in the world. He indorsed the head yoke as better than the shoulder yoke; but for all that, scientific tests have demonstrated that the shoulder yoke is many per cent the better method.

W. W. believed in producing comb honey in April and May, and Senior Fred in January and February. W. W. believed in feeding his bees sugar, and Senior Fred believed in feeding diluted honey. W. W. thought it a good



plan to start a bee-hive factory in Cuba, and knock out all foreigners. Senior Fred did not hanker after any such job—might go in at the larger and come out at the smaller end of the horn. W. W. thought it would be a good plan for Senior Fred and the Rambler to get married, and he had several Cuban ladies in view as eligible. Senior Fred and I were unanimous in the opinion that we'd get married when we got ready, and not before; and with this steadfast opinion, and at a late hour, we retired.

## EXTRACTED HONEY IN HOUSEHOLD ECONOMY.

### Honey as an Article of Food for Children.

BY PROF. C. F. HODGE.

I am interested in the discussions of extracted honey, bottling, etc., that are beginning in GLEANINGS. I have no fear that they will drive me to "extraction," for I have already reached that stage by a process of experience and necessity. For fancy use and now and then we want a nice comb of honey on the table; and however much extracted we use, about as regularly as butter, it can not take the place of the beautiful comb honey. But the staple use

solite proof that honey is a more wholesome food for children than cane sugar or pure syrups; but I am strongly inclined to the view that it is. It seems to me that it may be a more physiological mixture of sugars, and that it may contain, besides, traces of digestive ferments and flavoring substances that may be not only appetizing, which is no small matter, but wholesome as well. To say the least, honey is pre-digested sugar; i. e., the nectar of flowers is very largely cane sugar. This has been almost all changed into grape sugar by ferment action in the bee's stomach; and since all cane sugar must be changed to grape sugar before it is absorbed, honey presents a partially digested and thus easily absorbed form of sugar. It is analogous to malted milk and pre-digested cereal foods in this respect.

But besides the sugars, all honey analyses show a small percentage (.03—2.02) of nitrogenous matters which are quite sufficient in amount to be of considerable nutritive value, and more than enough to exert important physiological influences. Honey is recognized in medical works to have a soothing healing influence on inflamed surfaces, and to act as a mild aperient. This seems to me a field well worth investigating; and results, accurately stated, might

explain the proverbial goodness and wholesomeness of honey, and have some effect to reinstate it as a staple household food, even in an age of cheap sugar.

Mrs. Hodge says that I have not stated the case strongly enough as regards the wholesomeness of honey for little folks, and she has had the "experience" at first hand. Besides being a delicious food, honey is often taken for coughs and sore throats, but we have not had so much as a touch of cough or sore throat in all the four years, and that, too, with whooping-cough all about us most of the time, and even here in the house with us. Dr. Miller may say "pooh-bah" at this; but I am not claiming that it proves any thing except that honey is good to

bring up babies on after they outgrow milk sugar, and it is suggestive to say the least.

I am just ordering two more gallons of extracted honey to feed to the family (especially the babies) between now and spring. I hope it may prove as good as formerly. Apropos of the candied-honey question I have another note to add in this connection. The last two-quart can I brought down was candied. I explained how it could be melted back to its former consistency. Imagine my surprise when I was told that it was better as it was. "It

"THE PROOF OF THE PUDDING (HONEY) IS IN THE EATING."

of honey, I find (and here is where my "experience" comes in), is as a spread on bread and butter or rolls. Here the comb is in the way, especially with young children, and it is here that extracted honey should find its daily use. We have two babies, two and four, pictures of health and vigor; and, while I do not say it is due to the honey, they have had honey from the time they began to eat solid food, with almost no other sweetening, and they simply adore it, and have shown no signs of tiring of it. As I have before said, I have never seen ab-





is not so sticky, and can be spread like so much butter." That was a new idea to me. But what I started out to say is that bread and cream, with a generous layer of honey on it, and a glass of milk, make a supper fit for a juvenile czar.

Worcester, Mass., Jan. 6.

### VIRILITY OF DRONES.

#### Are the Drones from Fertile Workers and Virgin Queens of Any Value?

BY A. J. WRIGHT.

Which parent bears the greater responsibility for the healthfulness and general utility of the progeny is a question which

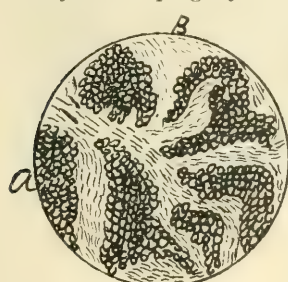


FIG. 1.

has not, so far as I know, been settled; so it may not be unfair to assume that both contribute equally. With this idea in mind, we then may safely say that a virgin queen, however strong and healthy she may be, will



FIG. 3.

not produce as large, strong, and healthy worker bees, if fertilized by a drone inferior in any way, as she would if fertilized by a perfect drone; in short, perfect progeny require perfect fertilization of the mother. The question, then, whether all



FIG. 4.

the fluid of a drone that has been flying about four weeks, from a strong colony containing a fertile queen, as it appears under the microscope. The appearance shown at *a* I judge to be little cells or germs from which the spermatozoa hatch, if I may use

the term in this connection, apparently a partly developed spermatozoone. *B*, Fig. 1, shows the fully developed spermatozoa floating in the space between the cells.

The spermatozoa are black, and appear to be about  $\frac{1}{16}$  inch in length, and as small as a single thread of spider silk. They are continually in motion, moving in vast shoals, and one can easily suppose that the fluid of a single drone might contain millions of them and the cells.



FIG. 5.

Fig. 3 shows the appearance of the fluid from drones from a fertile worker. Of several examinations made, all failed to show any trace of spermatozoa, and only an occasional germ or cell.

Fig. 4 shows the fluid from drones from a virgin queen reared the previous season, but not fertilized. While the fluid from these drones contains scattered patches of cells, no spermatozoa were found.

Fig. 5 shows the fluid from drones wintered over—no cells or spermatozoa were present.

From the foregoing it would seem that, to get the best drones, we should have them reared in a full colony having a fertile queen; that they should not be drones of a previous season, and not drones from a fertile worker. As no spermatozoa were found in either the fluid of drones from fertile workers or virgins it might be supposed that no danger could come from these sources; but it should be remembered that, while no spermatozoa were found, cells were found in limited number, from which I believe the spermatozoa are developed.

All drones examined had been flying four weeks or more.

Bradford, N. Y.

[You have certainly given us something of value on this vexed question; and if your conclusions shall be confirmed by others with the microscope we shall have come to the point where we can say positively that the drones of any thing except laying queens are practically valueless. But then, why does nature apparently make a mistake and allow male bees (that have not the power of procreation of their kind) to be developed from an imperfect female? I should be glad to hear from Prof. Cook, Dr. Howard, and Prof. Gillette. Possibly they have made some observations. If not, they could doubtless, with very little trouble, with the apparatus at their disposal, prove how far right our friend is really "Wright." It has been supposed that the drones of fertile workers and of virgin queens serve the purpose for which they were created; but perhaps it is a mistake.—ED.]



KEEPING BEES ON SHARES; A DIFFERENT PLAN.

I am planning to go into the bee business on a large scale. I propose establishing small apiaries in a dozen or more sections in this county, among farmers who will take enough interest in bees to watch over them in my absence. As soon as the increase justifies my devoting all my time to this business I expect to visit my scattered apiaries throughout the year, and give them the attention required.

My plan is to furnish all the capital and colonies, and give the persons on whose premises the bees are kept a share of the honey produced. My wish is to ascertain what share of the honey and wax product would be a fair compensation to the farmer on whose premises the bees are kept, it being understood that I keep the increase of colonies. If you can and will answer this query I shall be indebted to you.

This has been a poor season for bees. Cold and rain have predominated all spring and summer; and now while hundreds of acres of buckwheat are in bloom it is so cold as to keep the bees in their hives much of the time. Notwithstanding the unfavorable season, I have succeeded in doubling the number of colonies, and all seem to be making a little surplus honey.

Clarion, Pa., Aug. 18. A. J. DAVIS.

[Such a plan can be made possible under some circumstances. It is a little difficult, however, to suggest what would be a fair adjustment of the proceeds when you yourself do a good part of the work. When one party furnishes all the labor and the other the bees and hives and a location, it is customary to divide on equal shares, that is, each party takes half the wax, half of the honey; but all the increase in the way of swarms, artificial or natural, is to be the property of the party who furnishes bees and hives.

I can only suggest that, inasmuch as you are to perform all the work during the swarming season, the farmers, or parties who look after the bees, be given one-fifth of the honey and wax, you taking the rest, retaining all the increase; but each party is to furnish the necessary honey-packages to hold his share of the crop.—Ed.]

HOW TO GET A SWARM OFF FROM A TREE  
WITHOUT CUTTING A LIMB.

I inclose some pictures showing my way of hiving a swarm when it settled on a tree that I was not allowed to cut. While they

were settling I put the stick resting on the ladder so that a part of the cluster would settle on it. Then I moved it and smoked the part of the swarm off the tree, and you will see all of the swarm on the stick in the



PREPARING TO GET THE SWARM FROM THE TREE TO THE STICK.

second picture. I think it was a large swarm, probably weighing ten or twelve pounds.  
JOE S WISE.



SWARM TRANSFERRED FROM THE TREE TO THE STICK.

P. S.—Since the picture was taken, three weeks ago, they have filled two supers.  
Hazlehurst, Miss., May 13.



THE DANGER FROM THE USE OF PROPOLIZED CLOTHS IN SMOKERS; GRANULATED HONEY VS. GRANULATED SUGAR.

On page 656, August 1, I find the following: "Some one has suggested the value of old coffee-sacks for smoker fuel. There is nothing better for good strong pungent smoke, unless it is propolized cloths or quilts, that have outlived or outworn their usefulness." I wish to sound a note of warning with reference to putting propolized cloth into a smoker. A bee-keeper living in this city put propolized cloth into a smoker, lighted it, and opened a colony of bees. In a short time bees from every colony in his yard came in great numbers and commenced to rob the colony, and sting every person near. The whole apiary was demoralized. The owner's stepson was stung so badly that he was so sick for several days he could not go to his work. As a result, the owner had to move his bees away off to a gardener's, and finally went out of the business. The infuriated bees stung the neighbor's chickens and dogs, and were too dangerous to be tolerated.

Our bees wintered very well, and built up quite strong during fruit-bloom. Very few swarms have issued, and no surplus has been removed. Now and then there is a pretty good day. I'm of the opinion that a quarter-section in the city furnishes more bloom than the same amount of land in prairie farms. There is scarcely a lot but has flowers of some kind—beds of portulacca, sunflowers, madeira vines, etc. Sweet clover and catnip are quite plentiful, and bloom freely; but frequent rains wash out their sweetness. I've not been very well during the past year, and I came to the conclusion that sugar was injuring me. Chemicals used in bleaching and manufacturing it disagreed with me, and it took much of it to sweeten coffee or tea. Of late I've been using granulated honey to sweeten my coffee, and I'm well pleased with the change.

Who among the fraternity will realize enough money from his bees to pay his expenses to Denver? Don't all speak at once. Peoria, Ill. MRS. L. HARRISON.

[It was J. E. Crane, a bee-keeper conservative and careful, who suggested or recommended propolized cloth. Perhaps he would tell us of his experience.—ED.]

AN ASTHMATIC ATTACK INDUCED FROM OPENING A BEE-HIVE; WAS IT BEE-POISON OR POLLEN?

I write to ask information about a peculiar thing that happened to me last Sunday. I have never read any thing like it.

To commence with I would say that at times I have attacks of asthma, but not very severe, and have had no attack for nearly a year. Last Sunday morning, about 9:30, I thought I would open the top of a super on one of my Italian hives, and see if they were making any honey. The bees were

bringing in pollen very fast, and I put my head clear down to the hive to see the condition of it without lifting out any of the frames, thereby getting the full benefit of all the odors in the hive. I commenced to have an attack of asthma. I started for the house; but before I reached it I fell unconscious on the ground. The neighbors came running in, and a doctor was called. It was over thirty minutes before I came to, and mean while I had been struggling for breath. My wife said my face and hands were just as black as they could be, and the doctor said he could hardly feel my pulse. They injected morphine into my arms, which finally brought me around. I never want such an experience again; and if this is what bees are going to do to me I shall have to give them up.

What I want to know is, what pollen produced it? and do all asthmatic people have trouble among bees? I was stung on the hand when I was looking in, but I don't think that had any thing to do with it.

NEWTON A. KNAPP.

Winchester, Mass., Aug. 12.

[Perhaps some physician in our ranks could give us some light on this case.—ED.]

HOW TO KEEP A SURPLUS OF QUEENS.

A subscriber, a while ago, asked how to keep his extra queens. I will tell you how I do. When the honey harvest begins, if I do not want swarms I cage the queens with four or five attendants, in a cage something like the Miller introducing-cage, and put the cage in the surplus box. I think it better than the brood-chamber, as it calls the bees into the sections. No food is needed, as the bees will care for them, neither does it matter about caging them in their own hive, and several can be kept in one hive the whole season if you wish, by replacing attendants once in a while.

What kind of cloth is used in your waxpress, described in July 15th issue?

Stark, Mich., Aug. 4. B. PASSAGE.

[Cheese cloth is what we use. Burlap answers a very excellent purpose.—ED.]

450 LBS. OF COMB HONEY FROM ONE COLONY IN NEBRASKA.

Contrary to most reports from different parts of the country we are having a fine season here. We have had just enough rain to make crops grow finely. Our honey source is mainly alfalfa. From one colony we have already taken 450 lbs. of fine comb honey in 1-lb. sections, and it is still coming in at about 5 lbs. per day by scale weight. From 30 colonies we have now about 3000 lbs. of comb honey. The season will not be over for a month here. When I came here this spring all bees had foul brood, and I have successfully eradicated it, I will report the most successful methods later when it proves sure.

ROY A. WILSON.

Kearney, Neb., Aug. 18.

KEEPING UP WITH THE TIMES; THE STINGY  
BEE-KEEPER WHO CAN'T AFFORD A  
BEE-PAPER.

This subject has been suggested to me by reading some mirth-provoking letters in the "Apiarian" columns of some farm papers which come to me. One correspondent launches forth upon the sea of discussion as to the best method in working for increase and improving the stock. In making first division he says, "Set parent hive to one side and remove two frames of brood to new hive located on old stand, allowing old queen to remain in old hive and put a new queen in new hive with bees at time of dividing." Now, don't you know that those bees would immediately kill that new queen? In fact, his advice a little further on shows it when he says, "Eight days later make second division as at first, then go to first division and cut out a queen-cell, giving it to the second division." How in the name of sense would you expect to get queen-cells built in a nucleus with a good queen? And, again, just what a slim chance a queen-cell would stand of not being torn down by the bees of a newly made nucleus taken from a hive with a queen, unless a cell-protector is used, which he does not mention! He says this dividing can be kept up every eight days as long as honey lasts. It seems to me, though, they would be getting rather weak about the third division after losing their field bees and two frames of brood three times in two weeks.

In the same paper another correspondent says that "queens should be raised from selected workers." If this is true we have been—but, say—if queens can be raised from workers, workers can too, and why bother with queens? Oh how funny!

But underneath this rippling surface lies the question, broad and deep, which we are driving at—i. e., whatever be your business, *take a paper making a specialty of that business*, and the information gleaned from it will generally do to depend upon—bee papers especially. Do you know a politician who does not take political papers? or a tradesman who does not read publications devoted to his calling? If you do, you surely know him to be unsuccessful too. Then how easy to see the folly of attempting to succeed in bee-keeping when you depend upon the "bee page" of a paper devoted mostly to something else. The editor is, in one sense, not to blame, for he seldom knows any thing about bees, and has to chuck in his correspondence "bodily," just as he receives it. But couldn't he beat this by getting some good authority on bees to approve his bee articles? or, better still, take charge of this department? How is an agricultural editor to know who is good authority on bees? Well, all the editors of bee-papers I know are good authority, and do not let bad stuff get into their publications, so most of their contributors are all right.

It is no wonder so many fail with bees,

and, getting disgusted, quit the business and boldly denounce the careful painstaking bee-keeper who has paid out his money for the best information and best supplies the market affords, and say he can not produce honest honey in quantities. While he may injure the demand a little he can't very much, and in one way he is our safeguard by his failure deterring many who might be successful from entering the field and overdoing the business. While the true art of bee management may be transmitted, a heritage from father to son, one must also be on the lookout for the farmer bee-keeper who has hived a swarm of bees in an old "gum," and hastens to tell his farm paper about the great secret which the unknowing editor thinks is a fact, accepts it, and sends the paper a whole year in return.

Odin, Mo., Aug. 8. D. B. THOMAS.

IS THE WIRING OF FRAMES A NECESSITY?  
CAN GLUCOSE BE FED FOR COMB  
HONEY?

Some time ago I read in GLEANINGS that much useless wiring of frames is done. I have used foundation-starters, full sheets without wire, and also with wire. Now, I can not understand how anybody can succeed in keeping full sheets in the center of the frames without having them wired. I used to keep the sheets in the unwired frames in place by tacks; but this seems a poor contrivance, and I much prefer wiring. Will you kindly explain how others succeed without wiring?

I noticed some of your articles on comb-honey adulteration. You are, no doubt, quite correct that comb honey can not be manufactured; but can not comb honey (as my neighbor stated to me) be adulterated by feeding bees glucose? When I was confronted with this question I could not answer it, and I am looking to you for information.

Do you know whether that world-famous bee-keeper (Dr. Gandy), of Nebraska, wintered his bees in a cellar? and did he also practice spring feeding? If he did the former, he must have had a tremendous cellar for his three thousand colonies or a large number of such.

Will you give me the address of some standard periodical or journal on gardening?

Is the narrow entrance on the Danzenbaker bottom-board not too large, so that mice can enter in winter? Will it be necessary for me to reduce to  $\frac{1}{4}$  inch?

H. A. BURLING.

Cleveland, O., Aug. 23.

[I don't know how our friends get along without wiring their frames. While I acknowledge they *can* do it, and while I believe I *could* manage to do it, I would not. I would no more think of getting along without wiring than I would of going back to the old tallow candle. The expense of wiring is but trifling, the labor involved is small. The annoyance that I have experi-



enced in the handling of unwired combs, either for extracting or for hauling bees, is such that I could not think of getting along without wiring. Those who do so, if they would *once* try wiring a few hundred frames, would not think of trying to get along without it.

I suppose glucose, diluted with water, *can* be fed to bees for the purpose of filling out comb honey. I believe that some unscrupulous parties have been guilty of the practice; but from experimental tests that I have made I don't see how it can pay very long. I find that bees do not like the "nasty stuff." I can get them to take it, but from the limited trials I have made I do not see how it can pay; but there are men who will work harder to get a living dishonestly than they would by any fair honest means.

*American Gardening* bears an excellent reputation. It is published in New York. Box 1897 is the address.

The entrance to the Danzenbaker hive or bottom-board is not too wide for summer use, nor is it too wide other times of the year, providing the colony is strong, except during cold winter weather if the bees are left outdoors. It should then be contracted by an entrance-stop so the entrance shall not be wider than  $\frac{3}{8} \times 6$  inches. If the colony is not strong,  $\frac{3}{8} \times 3$  inches would be enough.—ED.]

#### RUNNING AN EXTRACTOR BY GASOLINE.

I would like your advice in regard to running an extractor by a gasoline-engine. I want to fasten it on a wagon, and keep it there. Do you think it a good plan to put it on a low-down wagon? I can get a  $1\frac{1}{2}$ -horse-power engine for \$85 that takes up a space of 2x4 feet. Now, what size of extractor would you recommend, and what size engine to run it?

We are working a churn with a  $1\frac{1}{2}$ -horse-power engine weighing 400 pounds, and it works finely.

Do you think it best to have an extracting-house on the wagon, or should I get a shaft, poke it through the honey-house, drive to the side of it, and buckle on? I could get a tight and loose pulley to work the extractor with. Please advise me if convenient. GLEANINGS is getting better every issue. The "Travels" are interesting and instructive. A. H. KNOLLE.

Shavana, Tex., Aug. 19.

[The gasoline-engine can be used for the purpose of running an extractor, and it is by all odds the cheapest power; but the speed can not be controlled very easily except by reducing gear, cone pulleys, or a slack belt. If a gasoline-engine is used, arrange the size of the pulleys from engine to extractor so that, when the belt is tightened, the extractor will run no faster than good wired combs will stand. There will be times, of course, when softer combs should be run at a less speed. In that case arrange for tightener with an idler so that the speed can be slacked at

the right point to secure the speed desired. Your idea of having the engine on a wagon is excellent. In that case I would arrange to have the shaft that runs the extractor projected through the side of the extracting-house. By having the engine located on a wagon one could run to the several out-yards and be under the expense of having only one engine.—ED.]

#### QUESTIONS CONCERNING BRUSHED SWARMS.

Will you please answer a few questions, and oblige?

We usually have about 25 colonies of bees to commence the season with; increase to 40 or 45 during swarming, and then double up the following fall and spring to the usual number again. Now, if I wished to practice the "brushed-swarm" plan—

1. Do you wire the frames in your new hive containing only starters?

2. Do you ever give the new or brushed swarm one or more frames of brood or honey at the time of brushing?

3. Under this plan, are the queens any more apt to put brood above in the sections while the combs below are being built?

4. Leaving the bees to build all their combs from starters, will they not build considerable drone comb?

5. If you had all the bees and old combs you required for your apiary, what would you do with your surplus combs each season with the above plan?

Kendallville, Ind. S. FARRINGTON.

[I can give you no answers based on practical experience. I only know what others have said. If I do not give the right answers I hope those who are in position to know will give us the correct practice.

1. I don't know whether it is the practice or not, but I would advise having the frames stayed up with horizontal wires. They will do no harm, and greatly stiffen the combs for extracting as well as for moving to outyards.

2. As I understand it, no frames of brood are given with a brushed swarm. Bees are made to start from the ground up.

3. The natural assumption would be that the queen would be inclined to go into the sections. My own advice would be to put perforated zinc between super and lower hive.

4. There are certain conditions under which bees will build store comb, and when they will build only worker. During the swarming season bees are inclined to build the former. I should naturally expect that some store or drone comb would then be built, but this might be cut out *a la* Boardman.

5. I do not know. I am getting into deep water. It is not my rule to attempt making answers or footnotes unless that answer or footnote is based on personal observation.

Our friend H. R. Boardman, of East Townsend, O., is competent to give correct answers along these lines, and I hereby request him to come over and help us.—ED.]

QUICK BUSINESS TRANSACTION; QUEENS INJURED IN THE MAIL; MAIL SERVICE, ETC.; THE A. I. ROOT CO. AND UNCLE SAM.

In dealing with friends at a distance, where changes and transfers of mail, express goods, and freight have to be resorted to, to reach destination, it sometimes happens that we are annoyed by what we consider, perhaps erroneously, unnecessary delay. On the other hand, we are pleased when matters turn out not only satisfactorily but even better than we could reasonably expect.

One Monday morning, a short time ago, after the morning mail had gone out, I ordered of The A. I. Root Co., among other apiarian supplies, some queens, providing they could be mailed at once. On Wednesday following, early in the morning, while I was busy among my bees, the little boy came up to me, as he frequently does, and, after looking on a few minutes, said:

"Grandpa, do you want any more queen-bees?"

I was somewhat surprised at his question, and imagined that the little fellow was trying to have a little fun with the old man; so, in Yankee fashion, I answered with the question:

"Why so? Do you have any to sell?"

"No," he said; "but we have just had a telephone message. There are some at the postoffice for you."

This surprised me still more. I expected no others; and in figuring up the time, I could hardly see how the mail could have had time to make the circuit from New York to Ohio and return, and leave any time for the Root Co. to fill the order. But as the boy assured me of the fact, I at once began to make my necessary arrangements for their introduction, intending to go after the queens as soon as every thing was ready. Just then a friend, an inmate of the house, who was coming from the postoffice, handed me the queens. I use my own introducing-cages, and it took some minutes to make the transfers; but I believe I can safely say that in less than fifteen minutes after the queens reached my hands they were in their respective hives.

Take it all in all, from the time the order left our postoffice, which could not have been before half-past eleven in the morning, it took less than 44 hours to send the order, reach its destination, put up and mail the queens, reach home again, and place them in the hives, and this at a distance of not less, perhaps, than 250 miles with its various changes from one railroad to another.

To complete the report, I will add that these queens were liberated Friday morning, and Sunday morning they had already some of their combs well stocked up with eggs. They have been quite prolific ever since, and have now, besides furnishing several combs for other colonies, their hives full of brood.

The question, "Are queens injured in the mail?" depends very much on circumstances. The time of confinement, and be-

ing deprived of the opportunity to comply with nature's desire, may have something to do with it; but I will mention only one feature that strikes the observer very forcibly. If we should witness the *modus operandi* of changing the mail at some of our by-way stations we should consider it almost a miracle that any living being confined in the mail-pouch could survive the operation. We can take an excursion trip of one or two days, and, if nothing unforeseen happens, return uninjured, and enjoy it. But if we are compelled to make a long, tiresome journey, be confined in a boat or car for weeks, with an occasional head-on collision for a change, we should not feel so well at the end of our route. The chances are that we should arrive more or less injured. This is very much the way in shipping queens. A comparatively short journey, with short confinement and reasonably careful handling, is not very apt to produce serious injury to a queen, as the foregoing case seems to prove. But imagine a poor queen, the unfortunate passenger, in one of those mail-pouches suspended in mid-air, when the flyer comes along at fifty or sixty miles an hour. The swung-out iron arm of the mail-car strikes the pouch a terrible blow, tears it from its fastenings, and lands it inside of the car—a veritable collision. Is it any wonder that queens are sometimes ruined by such treatment?

We are accustomed to find the Root Co. very prompt in dealing with customers; but it seems hardly fair to give them *all* the credit for the quick service reported above. I think Uncle Sam is entitled to a portion of it. Our mail service is certainly in good hands, although our mail officials are not as precise in every particular as some of the European governments require it of their employees; but for practical purposes our mail service is one of the best on our globe.

G. C. GREINER.

#### THE MARKINGS OF ITALIAN QUEENS, AND WHAT IS THE TEST OF PURITY?

In your A B C book you fully describe Italian bees (workers), but I can not find any description of Italian queens—that is, whether they should be all yellow, without a particle of black on the body, or whether black is sometimes present. I bought several queens from a breeder in this section, who claims to have nothing but first-class Italians, and I noticed a disparity in this respect, the queens showing more or less black. For instance, one of them has little or no black on the tip of the tail, or last segment, while this tip is decidedly black on others, while the second segment on these last has some black, and a little on third. I look upon these queens as an inferior grade, and little if any better than hybrids. I wrote the parties, asking them to explain this disparity in color, but they paid no attention. Would you kindly advise me if a pure Italian queen should be entirely yellow, without a semblance of black, or is a touch of black on the last segment permis-



sible? and can the impurity of the queen be judged by the amount of black shown? For my part I should think the more black the less Italian.

M. L. MORRISON.

New Orleans, La., Aug. 19.

[It is possibly true that our A B C of Bee Culture does not fully cover this point; but in one of our circulars we have for years published this paragraph:

ITALIAN QUEENS; WHAT IS THE TEST OF PURITY?

Sometimes when we send out a tested queen, customers complain, just as soon as she arrives, that she is a hybrid; and this opinion is based wholly upon her markings, irrespective of the markings of the bees that accompany her. It is a well-known fact, that pure Italian queens—those whose progeny are gentle three-banded bees, vary in color all the way from jet black to a bright orange color. The fact that the queen is black herself is no evidence at all that she is a hybrid. One of the blackest queens we ever had—daughter of an imported—produced as finely marked and gentle Italians as we have ever seen. As a general rule, though, Italian queens are striped with yellow and black. Our select tested queens (and they cost more) have the abdomen almost all yellow except at its very tip. Our tested queens, as a general rule, are striped with black and yellow on the abdomen; and our imported queens are the same. Let it be understood that the value of a queen does not depend upon her color. Some of the best breeding queens for business are dark-colored; and most honey-producers prefer what are called the leather-colored Italians.

You will see by the foregoing that your breeder has probably been furnishing you just such class of queens as he advertises for pure stock. The markings of pure queens and drones will vary decidedly; but the average Italian queen will be striped, yellow and black. Sometimes queens are all yellow except the tip, and sometimes they are all black. As stated, we have known such queens to produce pure, nicely marked Italian bees. As the A B C appears to be a little silent on this very important point I will try to get a paragraph in to clear up the matter.—ED.]

THE PARENT COLONY AND ITS PLACE IN  
THE A B C OF BEE CULTURE.

I am the proud possessor of one colony of Italian bees, the A B C of Bee Culture, and Langstroth's book on bees. I take great pleasure in watching my "pets" and studying their habits. They are now working on the flowers of the iron-weed and sunflowers, entirely ignoring the goldenrod, which is very plentiful in the vicinity of my residence.

I have read your A B C and Langstroth carefully, and both of you fail to make clear what takes place in the old hive after it has cast a swarm. I quote from A B C under the heading, *Swarming*: "When a colony gets excessively strong, the inmates of the hive, by a sort of preconcerted, mutual agreement, divide themselves off into two parties, one party *remaining in the old hive*, and the other starting out to seek their fortunes elsewhere." Now, my point is this: Both you and Langstroth follow the fortunes of the new swarm and new hive, even to the minutest detail and fact as to how they conduct themselves in their new abode. On the other hand, you treat the old hive as many of the old Western farm-

ers did the old log cabins after they had swarmed out of them to better abodes—either forget them entirely, or use them as a general dumping-place for old junk. Here and there throughout your book I glean by inference, more than any thing else, what takes place in the old hive after the swarm has left it; but there are no positive facts given beyond what I have quoted. Why not follow the fortunes of the "stay at homes" as explicitly as you have those of the swarming half of the old colony? I understand that you propose to bring out a new edition of the A B C. Why not devote a paragraph to the old hive?

DICKSON D. ALLEY.

Yonkers, N. Y., Aug. 21.

[I think you are doubtless correct that the A B C does not specifically describe the conditions of a colony that has cast a swarm; but if you will read up carefully "After-swarming," and also "Swarming," you will get a fair idea of what the parent colony may be. In both subjects, directions are given what to do with the parent colony and how to treat it. The parent colony may be described as follows: It is an aggregation of bees which, up to swarming time, was very strong in brood and numbers. After the swarm is cast it is bereft of most of the bees and of the old queen, both of which will seek a new home. The bees that remain will be mainly young bees. There will be brood in all stages, some capped cells, from which, if young queens have not already hatched, they will hatch in a day or two. Unless this parent colony is properly taken care of it is liable to send off after-swarms, to the extent of three or four, each with a virgin queen that goes off on her wedding-trip. It may, in fact, swarm itself out of existence. It is a practice, in some cases, to remove the parent colony to a new location after it has cast a swarm and hive the swarm in a new hive containing frames of foundation on the old stand.—ED.]

PECULIAR CONDITIONS IN NEW JERSEY.

Is the experience of M. W. Shepherd, Hollister, Fla., as given in GLEANINGS for Aug. 1, really so remarkable? Any up-to-date bee-keeper may look for at least one such experience, and may consider himself lucky if he does not have several. Bees holding off swarming until the new queen hatches is no new experience, at least with me. Normally it is an indication that the bees are "tired of mother" and want a new one; but it seems they hate to kill her (or something else), and hold the young queens two or three days in the cells. At the last minute the colony swarms, and the young queens push the caps off quick enough to join the "gang." I am not sure but the best way to handle such colonies is, when that condition is discovered, to kill the old queen, and, after the first young one hatches, remove all the other cells. Colonies treated in this way seem entirely satisfied, and are

"crack" workers the rest of the season. Many, however, of Shepherd's virgin queens probably came from hives which had cast at least one after-swarm, and which responded with a handful of queens in response to the first swarming-note of a close neighbor. I have had colonies swarm without a trace of queen-cells, but not this year. First swarms with virgin queens are no rarity with me this summer, and the past week I have had two swarms led by queens raised in June—a new experience with me.

The season, so far, has been a very peculiar one—tremendous bloom and honey, and no weather for the bees to get it into the hives, they getting enough to keep up the swarming impulse—not enough to kill it. Every colony wintered cast a swarm, and the end is not yet.

With me clipped queens would have only made a bad matter worse, *a la* Shepherd (I discontinued clipping ten years ago), as it would have resulted in too many swarms uniting. The only way to handle such conditions is to use common sense, and turn the surplus energy of swarming into honey.

So far the season here has been disappointing, the best colonies to date having filled but little over 100 sections each, and October weather during the present buckwheat bloom.

W. W. CASE.

Baptisttown, N. J., Aug. 25.

[There are times and seasons when bees will apparently violate all established rules. If the honey-flow be light and continuous, swarming will be much worse than if it be heavy. A peculiar season will develop peculiar swarming, often; and the past season has been one of peculiar conditions all over the United States.—Ed.]

#### BEEES DYING OFF; WHAT IS THE MATTER?

My bees are dying, and have been all spring. It has been wet all that time; but after a heavy rain they die more than at other times. Some dead bees are brought out of the hives, and some die on the ground, as they are all over the yard on the ground. Several queens have died. I have lost six colonies. They crawl all over the ground, and I can hear them at night. I can find nothing like it in the bee journals. Strong colonies die as well as weak ones. But very little honey has been made here this year. They seem to be working for the last two weeks, as it has not been quite so wet.

Please inform me how much ventilation I ought to give when I use a sealed cover. I think I did not give enough ventilation last winter. I left them on the summer stands covered with boxes.

How much lower should the front of a hive be than the back end for winter?

Hamburg, Iowa. W. R. BELCHER.

[Without seeing the bees it is a little difficult to decide just what is the matter. It is possible they are gathering something that poisons them. Once in a great while

a disgruntled neighbor will sometimes set out poison; and if that is true in your case, the bees will die off just as you describe. It might be well to make a little inquiry. If you are satisfied that there is no poison in the vicinity, I would suggest that you consult the symptoms as given in the textbooks, for bee paralysis.

Bees will very often die in considerable numbers immediately after a heavy honey-flow. They will be found on the grass and sidewalks. They are nothing more nor less than the bees that have served out their best days, and the product of their toil will be given over to others.

When sealed covers are used, a wider entrance should be used than when absorbents are put over the cluster. An entrance for the former  $\frac{3}{8}$  x 8 inches would be about right.

Bottom-boards should be slanted no more than enough to let the water run *out* at the entrance rather than *in*.—Ed.]

#### PUTTING IN EXTRACTING-COMBS, ETC.

1. Is it sound practice, when putting on supers, to raise two or three frames of brood up into the super, replacing them in the brood-chamber with combs or foundation?

2. In dividing is it better to leave the queen on the old stand or move her to the new one?

J. H. WALTERHOUSE.

Toronto, Canada, July 28.

[1. If the colony is not too strong it is advisable to put one or two frames of brood in the upper story along with frames of foundation or empty comb in order to get bees started above at work. If the colony is very strong the better way would be to put on perforated zinc, then put on the super above.

2. This depends upon circumstances. If an equal division is made we usually put the queen with the nucleus that is moved away from the old stand, as so many of the bees return, and the nucleus that is put in the new location needs the help of the queen, while the one that is on the old stand, having more bees, will be able to get along without a laying queen for a few days.—Ed.]

#### THE EUCALYPTUS OF CALIFORNIA.

I should be obliged for information regarding the eucalyptus-tree, a native of California. Would it grow and thrive in the western part of Colorado? Is it a good tree for the production of honey? Where could trees or seeds be obtained?

Groton, N. Y.

M. P. WEEKS.

[The eucalyptus-tree yields considerable honey at certain seasons of the year in Southern California. I do not know whether it would grow in Western Colorado or not. Perhaps some of our readers in the vicinity would be willing to give the information.—Ed.]





*C. P. B., Ore.*—The condition you find in front of your hives (dead bees) shows that these are simply superannuated bees that have died of old age. We usually find them in front of entrances of all hives in spring, about the time the bees are cleaning house, preparatory to the work of the season.

*W. M. J., Ky.*—It would be impossible to say just when the bees will supersede their old queen. That will take place when she begins to be too old to perform her regular duties. If, however, through disease or weakness she begins to fail when she is a comparatively young queen they will supersede her under those circumstances. A queen that can not lay the full quota of eggs at the proper season of the year, whether old or young, will be superseded as a rule. Bees will sometimes attempt to replace a good queen because one leg is crippled. Such a queen is sometimes very valuable if the bees will accept cells and build them out to large ones. We would make an effort to save the queen; and possibly by introducing her to other bees she will be allowed to go in peace. Some of the best queens we ever had, had a crippled leg, and would wobble over the combs.

*G. F. H., Wis.*—If you have combs in sections that are discolored, I suggest that you place them in front of a window. Pile one on top the other; and if the sunlight strikes them good and fair, hang a white sheet in front of the window. Allow the combs to stand that way for a few days or even a week. If the side of the comb next to the window is not whiter after the treatment than the side away from the window, then it would be impracticable to bleach by ordinary sunlight. It would be advisable, also, to try putting some of the sections into a small box and burning a little sulphur in the box with the sections. Try it in a small way; and then if the experiment works satisfactorily you will be justified in trying both plans of bleaching on a larger scale.

Referring to your method of grading, the plan that we advocate and carry out in practice is given at the head of our Honey Column in every issue. By turning to those rules you will see how we grade our honey, and how, in fact, all the honey in the United States east of the Mississippi River is graded. The grading that you refer to in your letter must be very antiquated, and the sooner it is discarded the better, as it will lead to endless confusion. If you were to sell honey by that grading you would lose very heavily; for it is, in fact, if I understand it, the standard system of grading turned wrong end to.

We can hardly advise you at what price the various grades of honey should be held at now. I suggest that you consult our Honey Column from time to time. But be sure to remember the prices quoted in that column are *wholesale*, not *retail*. If you desire to sell in a retail way you will have to add from 3 to 5 cts. per lb. to your honey.



And they said unto me, The remnant that are left of the captivity there in the province are in great affliction and reproach: the wall of Jerusalem also is broken down, and the gates thereof are burned with fire.—*NEHEMIAH 1:3.*

When Sanballat the Horonite, and Tobiah the servant, the Ammonite, heard of it, it grieved them exceedingly that there was come a man to seek the welfare of the children of Israel.—*NEHEMIAH 2:10.*

What I have in mind, dear friend, *ought* to make a good Home paper, for I have been visiting the "homes" of this locality more or less every day for some time back; and I have been not only visiting but I have been *praying* for these same homes.

I have told you several times of the little church off through the woods among the hills. Well, although there is a pretty thriving Sunday-school there every Sunday the membership of the church has gradually gone down until there are now less than a dozen, and these all women. One of the children told me at last communion there were only five who would partake. As a consequence, the building is out of repair, and things seem to be getting at loose ends all around. The church members are nearly all old people, and, although there was once a bright and flourishing Endeavor society here, it has now all gone to pieces, so to speak. Very likely I am not the one at my age to start the Endeavorers going, but I have felt for some time it would be right and proper for me to do what I could to have the church put in better repair, and also to hunt up and bring back the "lost sheep of the house of Israel."

At first I thought it would be an easy task; but, although I have found out *something* about the schemes of the enemy to all righteousness, I am not yet ready to give up.

I have often mentioned on these pages my friend of former years (and of all my life more or less), the Rev. A. T. Reed. Friend R. has been, for sixteen years, in the work of building up churches broken down or run down, and churches that are weak for any reason. As I have helped him quite a little at different times, I decided some time ago he was the one to wake us up, and set us at work in the right direction. As I write, he and I have been nearly a week together, out among the people. The pastor

of this church has been with us a good deal; but as he preaches in three other places he gets here to preach only every other Sunday evening. Of course, it would be better to have preaching every Sunday; but for a year or two back the church here has not made out to pay the minister his small salary of \$60 for coming once in two weeks.

Now, this is a rich farming region, and the people are, as a rule, well-to-do. I have told you of the big prices they have been getting for the great crop of this region (potatoes), but for all this the building seems to be forgotten, and the pastor and his salary seem to be neglected.

I decided the first thing to be done was to hunt up the "lost sheep," and that, when we succeeded in doing that, and getting them back into the fold, then the matter of repairs to "God's house" would take care of itself.

I want to confess to you that I have entered almost every new home with more or less fear and trembling. I feared we might not be welcome; but with very few exceptions I found myself pleasantly surprised. Over and over it was the story of gradually falling away, of staying home occasionally, and then oftener, and finally not going at all. For years past I have often said I was *afraid* to absent myself from church. I am afraid of the *consequences* of so doing. I am sure it would bring back the old life of former years, and I never want to see it back again. I can not bear the *thought* of having it come back, and that is why I always go to church if it is a possible thing.

One thing that had much to do with the dropping off of church attendance was the change of pastors. The "good shepherd" who gathered in the forty members was called to another field, or went to another field, and the sheep strayed away under the care of the next pastor. I do not believe in so much change among pastor and people, and I believe God will call both to account for so much of this work. Of course, the faithful "soldier of the cross" should stand by his church and by his captain, even if the captain be a new one; but I am sure there is no need for so many changes.

As a matter of course, in this country place there are people of many denominations, and these must unite to form a church. They did this pretty well under that first pastor, and might do it now if the good man who now has charge could be more among us; but with *four* different peoples how *can* he be with all very much? When the church was built they all united, and, if I am correct, raised the money with little trouble. It is far easier to build a church than to unite hearts that have become estranged. There is much complaint (especially among outsiders) that those who were members did not *deal* with their neighbors in a Christianlike way. Oh how careful we should all be that a few paltry dollars (or cents) should in no way induce us to *block* the building up of the kingdom here on earth!

I have recently had a little experience with a division line between my land and that of a neighbor. He declared it should not stand where the county surveyor had placed it. To avoid trouble, and possibly litigation, I told him to have the line run over again *his* way. The other neighbors remonstrated, and said then it would not be a straight line, and would not be *right*. I replied I would rather have the line *crooked* and *wrong* than to quarrel over a little strip of land. Finally, to have it pleasant with all parties, I agreed to buy the strip of him, even though I felt pretty sure it did not justly belong to him. He claimed the line was over on his land about six feet; but on figuring it up the value was less than *ten dollars*. Why, I have known of several cases where neighbors have fought and *killed* each other over a similar amount on a division-line disagreement.

At one or two places they did not apparently want to see the minister and me; but at many more places, as I learned afterward, they felt hurt because we did not call, and, best of all, almost all we called on came to the meetings looking bright, happy, and smiling.

Why, the change was so great with many, after talking of "Jesus and his love," I could hardly believe it was the same person. The lines of care, worry, and lack of hope, had given way, and a faith in God and his promises had taken their place, so as really to transform the individual. And, dear friends, that isn't all. When I first met Mr. Reed, and when, through his earnest and persistent pleading, I had dropped unsatisfying skepticism for a faith in God, I thought *then* (thirty years ago) that I would rather go with him and work by his side than do any thing else in the world. In fact, the thought of such a life gave me *thrills* of happiness such as never come to any human being until he gets a glimpse of living for the good of others and not for himself. Well, at the evening meetings, after a day among the people in their homes, I had these old *thrills* over again. In one of Dr. Watts' hymns these words occur:

Is this vile world a friend to grace  
To lead me on to God?

Of course, Dr. Watts meant the selfish world.

Yesterday was "circus day" in Traverse City, ten miles away, and I feared it might divert the attention of our *young* people, at least, from the meetings. In our visits the matter came up, and I asked a man if he thought attendance at the circus would help one to be a better Christian. His answer came out sharp and clear, "No, *sir!*"

I do not want to be too hard on the young people in regard to amusement. These are questions for the most part that each one must answer for himself; but it did seem a little hard that day to find it so difficult to get the people's attention, to say nothing about money for the minister, and to repair the church, when the circus took whole families, not by the dozen, but by the *hundreds*,



and families, too, that have to be helped by the neighbors year after year, that the circus should sweep up the hard earnings, largely from the poorer classes, and leave in its wake something not at all encouraging for the Sunday-schools, Endeavor societies, etc. By their fruits ye shall know them.

THE CABIN IN THE WOODS AS VIEWED BY  
YOUNGER EYES.

There has been some discussion among the younger Roots, as well as among some other people, as to whether this locality had any special advantages or whether it was only a *notion* of mine, or one of my "freaks," such as I have been having during most of my life now and then. Well, just a few days ago two of our daughters and two grandchildren came for an outing, and we, of course, anxiously awaited their verdict. After three days' experience Miss Carrie Belle (the youngest girl) wrote Huber (the younger boy) a letter. Before the letter was posted, Mrs. Calvert (the eldest daughter) suggested it would do nicely for GLEANINGS. Here it is:

*Dear Huber:*—Although only three days have been spent here in our "cabin in the woods," I am in love with "the cabin," the woods, the spring, the wonderful views, and even the potato-patch. The scenery is the most beautiful that one could imagine outside of paradise or Scotland. Father has made bicycle-paths everywhere through the woods, and there are old timber roads, grassy and dry, underneath, with the trees meeting overhead; and these old roads, even in the middle of a warm sunny day, are as cool and dark and shadowy as a fairy grotto. The woods are equal to a true Grimm's Fairy Tale forest; and toward evening it makes one feel like "The goblins'll get you if you don't watch out." I imagine that Howard experienced that sensation the other night when he went to the spring at dusk to see a phosphorescent stump. He came chasing back, out of breath, because he had heard a noise and was sure that he had seen a panther.

There are clumps and clumps of red raspberries growing wild everywhere along the roads and paths in the woods, to tempt one who starts out to take a walk; and the birds—if you understood bird-notes you could hear the red-eyed vireo, the chewink, pewee, song sparrow, field sparrow, vesper sparrow, goldfinch, and, once in a while, the loud fluttering and flapping and rustling of a partridge or the scream of a chicken-hawk.

From every little hill (there are hills everywhere) we can get the most beautiful view of the bay, extending clear around three sides of us. Traverse City can be seen, too, from some places. The breeze which comes from the bay fills one with life and strength and enthusiasm, and it is a pleasure to walk. I feel as if I were just learning to walk up here. The first day father took me to view the beauties of the plantation, and I will warn you right now that he will nearly walk your feet off, and then look surprised when you seem to wish to stop, for there are springs, potato-patches, fine views, curious stumps, wild Juneberry bushes, celery-rows, beautiful paths, etc., which are to be seen, and it would be hard to find a more enthusiastic or suitable guide than father is after he has once started on his rounds. It all is really more beautiful than I imagined, and the cabin is not a cabin at all, but a cosy little green-trimmed cottage.

The second day I was here I walked over to Mr. Hilbert's with father. We took a short cut through the woods; but as we were not acquainted with that way, and the directions given were not very clear, the "short cut" proved to be two miles while the regular route was only a mile and a half. The way certainly was wild. We walked through avenues of stalks and underbrush where I had to hold both arms straight up, and we climbed logs and rail fences too numerous to mention. In one place we slid down a brushy tree-trunk to a ravine below, and in another we scrambled

through a tiny hole in the underbrush, about big enough for a "partridge." We were supposed to be following a path; but it was the wildest path I ever saw. It was fine. It made you feel that you were a real "wild Injun," and that all the woods and air and sky and scenery belonged to you.

The walk home was just as beautiful, although not so wild. It was a surprise, after we had come into the boundary of our own woods, to be walking along in a deep forest and suddenly come upon a potato-patch in a little clearing. You immediately forgot that you were a wild Indian, and became a civilized being, until the potato-patch was passed and the dense woods closed around you again.

We hope that you will come up here soon, and see for yourself all the things that we have been telling you, and learn to walk in the Traverse air.

Your loving sister,

Bingham, Mich., Aug. 11.

CARRIE BELLE.

Perhaps some allowance should be made for the above, on the ground that she inherits more or less her father's disposition and tastes—a "chip of the old block," you know.



A NEW APPLE, ETC.

To-day I sent to you a small basket of Day apples. I hope you will get them in good shape. I want to surprise you as to what we can do down here. The trees are eleven years old, and have borne eight good full crops, and there has never been a worm found in one, and I never sprayed. Remember, there are but few varieties of apples that do well here. J. W. DAY.  
Crystal Springs, Miss., Aug. 4.

The apple mentioned in the above is fair size, very handsome, yellow, streaked with red; flattish shape; deep cut around the blossom end, and quite peculiar-looking; quality excellent, but rather sweet for most people; but this may be owing to the fact they were overripe. I can hardly understand why it is never wormy, if other apples are wormy unless sprayed. The finest apple around the "cabin in the woods" at this date (Aug. 23) is the Yellow Transparent. In fact, I am very much inclined just now to call it the finest apple I ever got hold of. I certainly never enjoyed eating apples, at any time in my life, as I do now. This apple is a beautiful waxy white and yellow, and they keep several days after they are as mellow as a peach. In this State you can peel off the skin as you would a very ripe peach or plum. They are not nearly as sour as the Red Astrachan, which is also fine here. This cool region seems particularly adapted to apples, especially early ones.

THE WILD-GOOSE PLUM.

*Mr. A. I. Root:*—I notice in last GLEANINGS your mention of Mr. Hilbert's wild-goose plums. With us there are trees from different nurseries. Some bear and some do not. We have big trees here that scarcely ever have a plum on, while other trees are loaded down with fruit. I have always budded or grafted from heavy-bearing trees. Now, if Mr. Hilbert will write me in the spring I will send him some grafts if he will pay postage on them; and if they will not bear it must be his locality. They are no more curculio-proof than the common wild plum to which family it belongs. S. H. BLOSSER.

Dayton, Va., Aug. 11.

# HONEY QUEENS!

Laws' Leather-colored Queens.  
Laws' Improved Golden Queens.  
Laws' Holy Land Queens.

A prominent queen-breeder writes: "I have reared and sold over 5000 queens in the past few years, and I am using your stock exclusively, as it is the best I can get." Another writes: "The queen mother I got of you is the best queen I ever saw." A prominent writer for the *Review* states the Laws queen is making a fine showing. Many nice letters indicative of the superiority of Laws' queens on file. Prices: Tested or untested, \$1.00 each; six for \$5.00. Discount on large lots. Write for circular.

W. H. Laws, Beeville, Texas

## Queens! Queens!

We have five different yards, 5 to 20 miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinoes are bred for business. You can send in your orders at following prices the rest of this year: Tested, \$1.50 each; \$3.00 for six; \$15.00 per doz. Untested, 75c each; \$4.25 for six, or \$8.00 per doz. Fine breeders, \$5.00 each. Safe arrival guaranteed. Write for free catalog. Tells how to raise queens and keep bees for profit. The Jennie Atchley Co., Beeville, Bee Co., Tex.

### Wanted Immediately, Comb Honey in Danzenbaker Sections.

We have a market for large quantities of fancy comb honey in Danzenbaker sections, and shall be pleased to hear from parties who have any to offer. In writing, please state:

1. From what source gathered.
2. Color (white or amber), and grade (Fancy or No. 1.)
3. In what size cases.
4. Price at which you will sell f. o. b. at your station or delivered at Medina (preferably the latter).

We can use, also, moderate quantities at once in Ideal (3½x5) and 4½x4½ sections; also extracted. Send sample of extracted, putting your name on the same, and giving particulars as to amount, source, size of package, and price. Extracted honey is preferred in 5-gallon square cans.

THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Fancy and No. 1 white comb honey; also gilt-edged extracted clover in 60-lb. cans.

B. WALKER, 28 35d Place, Chicago, Ill.

WANTED.—Honey and beeswax. Mail sample, and state price delivered at here. C. H. W. WEBER, 2146, 2148 Central Ave., Cincinnati, Ohio

WANTED.—Comb and extracted honey. State price kind, and quantity. R. A. BURNETT & Co., 199 South Water St., Chicago, Ill

WANTED.—Comb honey, white or amber, for cash or on commission, clover preferred. Reference—The A. I. Root Co. C. G. TURNER, Mechanic Falls, Me.

WANTED.—Offers of car lots of honey, especially comb honey. Cash paid on delivery at your warehouse or station. THOS. C STANLEY & SON, Apiarists and Honey Buyers, Manzanola, Col., or Fairfield, Ill

WANTED.—Beeswax; bright yellow preferred. I. J. STRINGHAM, 105 Park Pl., New York City.

To make cows pay, use Sharples Cream Separators, book "Business Dairying" and cat. 288 free. W. Chester, Pa.

In a private note from Mr. G. F. Davidson, of Fairview, Texas, we are informed that the *Lone Star Apiarist* will not be published any more. We regret this turn in affairs, as the *Apiarist* was a welcome visitor at our table.

## Minnesota Bee-keepers' Supply Mfg. Co., Manufacturers of Bee-hives, Sections, Shipping-cases, and Everything Used by Bee-keepers.

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

Minnesota Bee-keepers' Supply Mfg. Co.,  
Nicollet Island Power Building, Minneapolis, Minn.

### Imp't'd Queens Direct from Italy

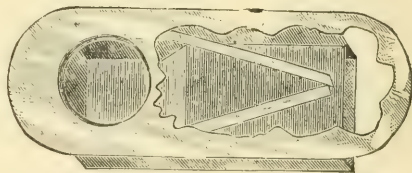
Please send us your address on a postal card, and we will send you our price list of queens, written in English. Correspondence *not sufficiently post-stamped* will be refused. Our motto: "Whatsoever ye would that men should do to you, do ye even so to them." Write Malan Brothers, Queen-breeders, "Apriario," Luserna, San Giovanni, Italy.

BEES FOR SALE.—100 colonies of leather-colored and golden Italians in nine-frame hives on Langstroth-Hoffman standard frames. My leather colors took first premium at the Minnesota State Fair last year. Delivery at any time before winter. Ample stores guaranteed. Singly, \$5.00; in lots of 20, \$1.50 each, on car.

W. R. ANSELL,

Millie Lacs Apiaries, Milaca, Minn.

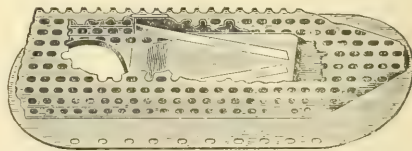
## Seasonable Suggestions.



### Use The Porter Spring Escape.

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncup their honey and start robbing. Just tip the super to the angle of 45° and insert the board. In a few hours it is free of bees; then take off your super. No need smoking. You can as well afford to be without a smoker as without the Porter Bee-escape. Order to-day.

PRICE: 20c each; dozen, \$2.25; postpaid. With board, 85c each; \$3.20 per 10; by express or freight.



### Use Porter Honey-house Escape

over the doors and windows in the extracting-house, or any place you wish to clear of bees. The most persistent robber can not return. Some beekeepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape. Don't wait till to-morrow before you get a supply. You can't afford to be without them longer.

PRICE: 25c each; \$2.75 per dozen; postpaid. Board without escape, 15c each; \$1.00 per 10.

—FOR SALE BY—

THE A. I. ROOT CO., Medina, Ohio, U. S. A.

And all Branches and Agencies.



## Seasonable Offerings.



**The Fred W. Muth Co.**

Front & Walnut Streets

**Cincinnati, Ohio.**

### Muth's Pound Square Flint-glass Honey-jars

with patent air-tight glass stoppers, at \$5.50 per gross. Far superior to old style with corks. Try a gross. Just the thing for home market.

### Crates of Two 60-pound Cans.

Been used once, but in good condition. In lots of five crates, 40c each; ten or more, 35c. This lot is limited; order at once.

### Queens; the Best Money Can Buy.

*Buckeye Strain three-banded* are the genuine *red clover workers*. *Muth's strain of golden Italians* can not be surpassed. Either of above 75c each; six for \$4.00. Select tested, \$1.50 each. A trial will convince you. Send for our catalog of bee-supplies.

## QUEENS!

BY RETURN MAIL.

We are now breeding from three distinct strains; viz., Imported or leather color, Root's long-tongued or red-clover strain, and our old strain of white banded yellow Italians, or albinos.

### PRICES:

|                                  |        |
|----------------------------------|--------|
| Tested, each.....                | \$1.25 |
| Select tested, each.....         | 1.50   |
| Warranted purely mated, each.... | .75    |
| Same, per half dozen.....        | 4.00   |
| Same, per dozen.....             | 7.50   |
| Untested, each.....              | .65    |
| Same, per half dozen.....        | 3.50   |
| Same, per dozen.....             | 7.00   |

We have also a full line of bee-keepers' supplies including THE A. I. ROOT COMPANY'S GOODS. Send for our 32-page illustrated catalog.

**W. W. Cary & Son,**  
Lyonsville, Mass.

## The Best Stock.

I have had 18 years' experience in the production of honey, and during that time I have always tried to improve my stock by buying queens from breeders who breed for honey-gathering instead of color; then, by crossing these different strains, and selecting the best, and breeding from them, I have secured a strain of stock that is the equal of any for honey-gathering. This year I am breeding from a daughter of Root's famous \$200 queen, and from the stock of J. F. Moore. Warranted queens, in any quantity, will be sold at 55 cts. each, and satisfaction will be guaranteed in every case, or money will be refunded.

**L. H. Robey, Worthington, W. Va.**

## 10 CENTS

That's all it costs to get acquainted with the

## Rocky Mountain Bee Journal.

We want to send it on trial to every reader of *Gleanings* **Three Months for 10 cts.** This vigorous young monthly has just entered its second year on a paying basis, and has become the recognized mouthpiece of the beekeepers of the great Rocky Mountain alfalfa regions. Address

**The Rocky Mountain Bee Journal,**  
Box 611, Boulder, Colorado.

### Special Notice to Bee-keepers!

## Root's Supplies

at Catalog Prices.

SEND FOR CATALOG.

**F. H. Farmer, Boston, Mass.**  
182 Friend St., 1st Flight.

## Bee-supplies Quick

Let us show you how quick we can fill your orders. Best of goods and the best place in country to ship from.

Get our Prices on Dovetailed Hives and Sections. Write to us if you have any Honey or Beeswax to sell.

**C. M. SCOTT & CO., INDIANAPOLIS, INDIANA.**  
1004 East Washington Street.

California has had a light honey crop this year, but here is an encouraging letter from a resident of that State, in regard to the doings of a colony having a queen of the Superior Stock.

DOS MESAS, CALIF., June 26, 1902.  
W. Z. HUTCHINSON, Flint, Mich.  
Dear Sir:—I enclose you the photo. of a hive taken at 6:00 A. M. being the only time of the day that the sun shone directly upon it. The colony in this hive is the development of a three-frame nucleus, in which was placed the queen that you sent me last summer. You may remember that she was sent quite late in the season, as California seasons go. However, she raised enough bees so that they filled ten frames full of honey for winter. On account of the good showing of this queen last fall, I used her to breed from this season, taking larvae from the combs, per the Alley method, every five days. In spite of the loss in comb and bees, and the interruption to the labors of the hive, I have taken off 66 well-finished sections. Please bear in mind that this is a poor year, and most of my 145 big hives have given me nothing. These bees are the nicest bees to handle of any I have ever seen. While I do not suppose that you intended to send me a selected breeder, I am satisfied that this queen will compare favorably with any queen owned by anybody. If this will be of any aid to you in advertising Superior Stock, you are welcome to print it.

Yours sincerely, H. N. CROSS, M. D.

My friend, for \$1.50 I can send you a queen reared from the same strain as the queen possessed by Mr. Cross. She will come from the same breeder, and be reared in exactly the same manner. I will guarantee safe arrival, safe introduction, purity of mating, and entire satisfaction to the extent that the queen may be returned any time within two years and the money will be refunded, together with 50 cts. extra to pay for trouble.

Special Offer.—For \$2.00 I will send one queen, and the Bee-Keepers' Review for one year.

W. Z. HUTCHINSON, Flint, Mich.



\$1---for The Pacific Bee Journal and Gleanings---\$1

## Here in California

we need only one good year to make a stake. 200 colonies in the fall can be bought for \$500, and often return \$1500 in honey with two months' work. Off seasons we have, but where else in this wide world will an apiary produce 400 lbs. honey to the colony?

"A Term of Good Years Must Come Again."

Pacific Bee Journal with Gleanings, new or renewal, \$1 a year. Address

237 East Fourth St., = Los Angeles, Calif.



# Queens!

Buy them of H. G. Quirin, the largest queen-breeder in the North. The A. I. Root Co. tells us our stock is extra fine. Editor York, of the *American Bee Journal*, says he has good reports from our stock from time to time, while J. L. Gandy, of Humboldt, Neb., has secured over 400 lbs. of honey (mostly comb) from single colonies containing our queens. We have files of testimonials similar to the above.

Our breeders originated from the highest-priced long-tongued red-clover queens in the United States.

Fine queens, promptness, and square dealing have built up our present business, which was established in 1888.

### Price of Queens After July First.

|                                                            | 1      | 6      | 12      |
|------------------------------------------------------------|--------|--------|---------|
| Selected.....                                              | \$ .75 | \$1.00 | \$ 7.00 |
| Tested .....                                               | 1.00   | 5.00   | 9.00    |
| Selected Tested.....                                       | 1.50   | 8.00   |         |
| Extra Selected Tested—the best<br>that money can buy ..... | 3.00   |        |         |

We guarantee safe arrival to any State, continental island, or any European country. Can fill all orders promptly, as we expect to keep three to five hundred queens on hand ahead of orders. Special price on 50 or 100. Circular free. Send all orders to

**Quirin the Queen-breeder,**  
Post and Money-order Office, Parkertown, Ohio.

# GOOD FOR CUBA!

The letter below, entirely unsolicited, proves that the "Case" queens are Good for Cuba. Mr. Frierson bought 100 or more, last fall.

*Friend Case:*—The queens all came in good order. My bees, especially those I got from you, have superseded very few queens. Only two swarmed, and they were very much exposed to the sun. Notwithstanding the loss I had last fall, which caused me to divide up so late, I got a great deal more honey than my neighbors, and extracted later in the season. And now comes the pretty part: I have not fed a pound of sugar this summer, while all my neighbors have been feeding for some time. I have many hives now with 40 lbs. of honey, while the dark (Italians) have none, and I have to take frames of honey from your Italians and give to the dark ones—Italians, the parties who sold them called them. Call them what you will, it is very strange to me that they will starve while others in the same yard have such an amount of surplus. I want to get them strong early this season, then, if they bring in the honey as they did last season.

Ceiba Mocha, Cuba, Aug. 15.

C. B. FRIERSON.

The above queens were reared from same mother and same method I am now using. Except for number of queens tested it is a fair sample of a big lot of testimonials.

Prices of queens from my golden strain: One select warranted, \$1.00; six, \$5.00. Fair average queen, 75c; six, \$4.00. Send for folder.

J. B. CASE, Port Orange, Florida.

## Clover Queens==Two for \$1.00,

or 65 cts. each; tested, \$1.00 to close down soon. Queens fine as silk. M. O. Office, Guernsey.

G. Routzahn, Menallen, Pa.



# Imperial Giant Pansy Collection.

Over 50 Lovely Varieties; a Superb Mixture; Almost Given Away to Introduce.

I also send with above seeds a "Treatise on Growing Pansies," telling every one just how to succeed; and a practical up-to-date Book on Window Gardening; all sent postpaid for ONE DIME (well worth 50 cts.). This offer is unequalled in the whole history of the seed business. I make it solely to secure your order, friendship, and future trade. Do not disappoint me. Now is the time to plant these beauties.

All  
the Grandest  
Giants.

All the  
Famous  
Prizetakers.

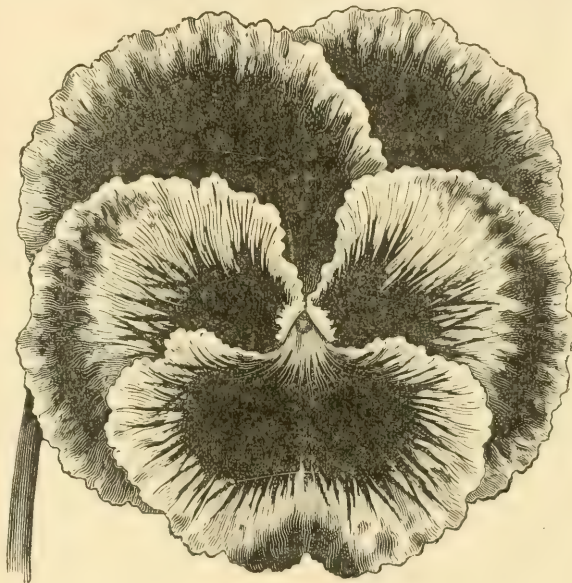
All the  
Odd, Curious,  
and Unique.

Huge Jewels  
of  
Velvet & Gold.

Every  
Imaginable  
Color.

Blossoms  
3 to 4 inches  
in Diameter.

Beautiful  
Beyond  
Description.



25 Years of  
Practical  
Experience.

Hundreds of  
First  
Premiums.

Thousands  
of  
Testimonials.

Club Agents  
Wanted  
Everywhere.

I  
Give Beautiful  
Watches.

No Trouble  
to  
Obtain Them.

Lots of Money  
in Selling  
Pansy Plants.

Pansies sold in the fall produce incomparably the finest and largest flowers of the brightest colors They endure the hardest winters without injury, and will produce a perfect cloud of brilliant blossoms the whole season through. No flower will bloom as long—none will give as much pleasure. Pansies are the most popular and fashionable of all flowers, and every one should grow a liberal supply.

**TO INTRODUCE** my Giant Pansies to EVERY reader I will send the entire collection, as above—including seed of fifty varieties, essay, and book, all securely boxed and prepaid, for ONE DIME, or 12 cts. in stamps: Three collections for 25 cts.; fifteen for \$1.00. Please order at once. Every customer will receive free my Illustrated Catalog of Bargains.

**SPECIAL.**—If you order above PROMPTLY I will add a nice present that retails for 15 cts. Do not miss it. It will be a pleasant surprise.

**CLUB RAISERS WANTED.**—I give fancy engraved watches, stem-wind—perfect time-keepers. Can be earned in a few hours. Full particulars and outfit included in the above collection.

## READ THE FOLLOWING AND SEE

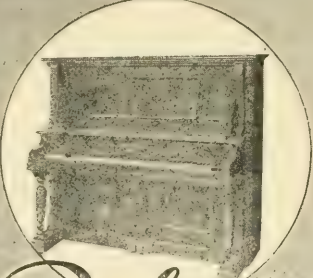
IF YOU WOULD MISS THESE WONDROUS BEAUTIES. THIS OFFER WILL NOT APPEAR AGAIN.

From Mr. H. A. McQuiston, Pansy Specialist, of Preble County, Ohio.

*Mr. A. T. Cook.* Dear Sir:—For many years I have made a specialty of growing choice pansy plants—have tried many best varieties of leading seedsmen, and can truly say yours far surpasses them all in vigor of the plants, size and number of blossoms, and great diversity of colors. I recently took a basketful to our Ministers' Jubilee, and you certainly would ask more than 20 cts. per packet if you could have heard the words of praise and exclamations of wonder and delight from those present—such as "Oh how lovely!" "The prettiest pansies I ever saw!" "I did not know they ever grew so large;" "Where do you get the seed?" etc., etc. It is no trouble to sell plants from your seeds—they sell themselves. I have been your customer for over twenty years and have always been pleased with your seeds and the many "extras."

Address at once **A. T. COOK, SEEDSMAN, CAMPTON, NEW YORK.**

## The Ideal Piano



# Packard

Built anticipating the demand of those satisfied with nothing but the best and looking for a piano of the **Highest Artistic Creation**

Are you considering the purchase of a piano? Our proposition will prove more entertaining than any you have had. *Catalog and full information free on application.*

**THE PACKARD COMPANY**  
P. O. Box F Fort Wayne, Indiana

## SEWS ANYTHING

from silk to coarsest fabrics. The celebrated

### BALL-BEARING

### ARLINGTON

(equal of any \$40 to \$65 Machine.)

Combines highest grade mechanism with efficiency with beautiful appearance. Finest and most complete attachment. BALL BEARING, hence easy running, positively warranted for 20 years. \$29.00 gold best, also from every State.

Write for Free Catalog showing all styles and samples of work. Arlington guaranteed machines from \$11.95 up. Our Automatic Cabinet at \$17.75 is a wonder. CASH BUYERS' UNION, Dept. A-345, CHICAGO, ILL.

RIPE ST. NATIONAL PARK, CHICAGO



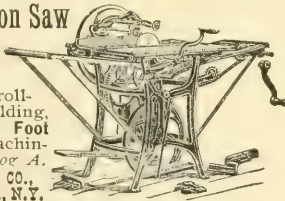
\$14<sup>75</sup>

Shipped on 8 Month Trial

## Union Combination Saw

For Ripping, Cross-cutting, Rabbling, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line Foot and Hand Power machinery. Send for catalogue A.

SENECA FALLS MFG. CO.,  
44 Water St., Seneca Falls, N.Y.



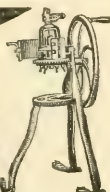
## AN EGG MAKER

Nothing equals green cut bone for hens. Any one can cut it with

### Mann's Latest Model Bone Cutter.

Open hopper. Automatic feed. 10 Days' Free Trial. No pay until you're satisfied. If you don't like it, return at our expense. Isn't this better for you than to pay for a machine you never tried? Cut 'g' free.

**F. W. MANN CO.,**  
Box 37, Milford, Mass.



**POULTRY PAPER**, illustrated, 20 pages, 25 cents per year. 4 months' trial 10 cents. Sample free. 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. Catalogue of poultry books free. *Poultry Advocate*, Syracuse, N.Y.

## Pansy Time

SOW SEED NOW



Pansies sown in the fall produce incomparably the finest and largest flowers of the brightest colors. Let no reader miss A. T. Cook's remarkable offer on page 751. Send to-day. The offer will not appear again.

## Wagon World Awheel.



Half a million of these steel wheels have been sent out on our own wagons and to fit other wagons. It is the wheel that determines the life of any wagon, and this is the longest lived wheel made. Do you want a low down Handy Wagon to use about the place? We will fit out your old wagon with Electric Wheels of any size and any shape tire, straight or staggered spokes. No cracked hubs, no loose spokes, no rotten felloes, no resetting. Write for the big new catalogue. It is free.

**Electric Wheel Co., Box 95, Quincy, Ills.**



Fruit & Ornamental, Shrubs, Roses, Bulbs and Plants.

Correspondence solicited. Valuable Catalogue free.

49th year. 41 greenhouses, 1000 acres.  
**THE STORRS & HARRISON CO.,**  
Painesville, Ohio.



PAGE

## WHY BUY ANY

other fence if you believe THE PAGE is best?

**Page Woven Wire Fence Co., Box S, Adrian, Michigan.**

## HONEY QUEENS FROM TEXAS.

I can furnish queens of 6 different races, all bred in their purity in separate yards from 6 to 25 miles apart. Untested queens, 75 cts. to \$1.00 each. Tested queens of either race, \$1.50 to \$3.00 each. Breeders, \$3.50 to \$5 each. Bees by the pound, and 1, 2 and 3 frame nuclei a specialty. Prices cheap. Quoted on application. Price list free. Will Atchley, Box 79, Beeville, Bee Co., Tex.

## Queens for Aug. and Sept., 60 cts.

Abbott L. Swinson, queen-specialist, will mail warranted American Albino Italians (best bees known) to introduce the stock, at 60 cts. each; \$6.00 per dozen. Everybody try them, and get the bee you need.

**Swinson & Boardman, Box 358, Macon, Ga.**

## Barns

Barns of plank save timber and cash. Neatest, cheapest, strongest, most desirable.

5000 in 42 States. Tested for 20 years. Indorsed by agricultural colleges and scientific men. Book for stamp.

**Shawver Brothers, Bellefontaine, Ohio.**



## Long Tongues Valuable South as well as North.

How Moore's strain of Italians roll in the honey down in Texas

Hutto, Texas, Nov. 19, 1901.

J. P. Moore.—Dear sir:—I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my out-apiaries next spring with your queens.

Yours truly, HENRY SCHMIDT.

The above is pretty strong evidence that red clover is not the only plant which requires long-tongue bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75 cts. each; six, \$1.00; dozen, \$7.50. Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00. Safe arrival and satisfaction guaranteed. Circular free. I am filling all orders by return mail, and shall probably be able to do so till the close of the season.

**J. P. Moore, L. Box 1, Morgan, Kentucky.**

Pendleton County.

**50 or More Full  
Swarms of Bees  
\$1.50 a Swarm.**

With good laying queen in shipping-box; no hive or combs; have extra, \$1.00. These bees are for feeding-up for winter, to make colonies, or to strengthen weak colonies, or may be used for requeening. Full directions given. Orders filled as received. Address me. F. H. McFarland, - - Hyde Park, Vermont.

## POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts. if you mention Gleanings (reg. price, 50 cts.).  Inland Poultry Journal, Indianapolis, Indiana.

Thirty nice black and hybrid queens at 25 cts. each. F. H. McFarland, Hyde Park, Vt.

## Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—To exchange one 400-egg Reliable incubator, used very little, and one egg cabinet for 400 eggs, for bees, bee fixtures, or any thing I can use in the bee business.

NOAH MONROE, Perkins, Oklahoma Territory.

**WANTED.**—Maine comb honey. State quality and price. MAURICE W. ROYAL, Manager of The Royal Apiary. Gardiner, Me.

**WANTED.**—To sell black queens for requeening out-apiaries, at 25c each; 6 for \$1.25; 10 for \$2.00. J. M. JENKINS, Wetumpka, Ala.

**WANTED.**—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card. N. A. KNAPP, Rochester, Ohio.

**WANTED.**—To sell 200 swarms of Italian bees. Also 7000 lbs. white extracted honey in 60-lb. cans; 5 acres choice improved land, and house and two lots; or will trade for merchantile business. Don't write unless you mean business.

ELIAS FOX, Hillsboro, Wis.

**WANTED.**—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & Co., Chicago, Ill.

**WANTED.**—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and 4 1/4 x 4 1/4 sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—To exchange 1500 pansy plants for one 60-lb. can of white clover or basswood honey, or will sell for cash at \$3.00 per 1000, or 100 plants, post-paid for 50c. My strains of pansies are pronounced the finest on the Buffalo market. Fresh seeds of same, per oz., \$3.00; 1/4 oz., \$1.00.

J. G. LEHDE, Forks, Erie Co., N. Y.

**WANTED.**—One or more copies of Vol. II. Cheshire's Bees and Bee-keeping. Let us know in what condition your book is, and price wanted.

THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid. O. H. HYATT, Shenandoah, Ia.

**WANTED.**—To sell in December, 160 acres of improved land for \$500 and 200 hives of yellow bees, and extracting tools; hive factory very cheap for cash. I was the founder of the apiary with which J. C. McCubbin, of Central California, earned his fame. So come for health where there is but little rain and no snow. Land is rich, and crops grow. This State has all kinds of climate and soil.

S. W. CONRAD, Poplar, Tulare Co., Cal.

**WANTED.**—To exchange bees, supplies, books, and a long list of articles (write for list), for typewriter, combined hoe and drill, and beeswax.

F. H. MCFARLAND, Hyde Park, Vt.

**WANTED.**—To exchange an American fruit-evaporator (nearly new, capacity 8 to 12 bus., cost \$35), for honey or supplies. Will sell evaporator for \$15. DEAN FERRIS, 1510 Maple Ave., Peekskill, N. Y.

**WANTED.**—To buy L. combs for extracting. State whether new or old, wired or not, worker or part drone, and quote prices f. o. b.

C. B. THWING, Syracuse, N. Y.

**WANTED.**—To sell 75 colonies bees cheap; also some aster comb honey. Bid quick.

R. S. BECKETT, Sadlersville, Tenn.

**WANTED.**—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited. TYLER BROS., Nicolaus, Cal.

**WANTED.**—To sell 3500 lbs. of white clover and sweet clover mixed; also 50 hives of bees and fixtures at a bargain.

WM. H. MCKINLEY,  
59 Chandler St., Buffalo, N. Y.

**WANTED.**—During the month of September, 35 laying Italian queens; must be of good stock. Address, stating lowest price,

E. P. GIBBS, Hardesty, Maryland.

**WANTED.**—To sell. Having received a government position, I am compelled to sacrifice my apiary, poultry, and fruit business located on 15 acres of fertile land on navigable tide-water river, about 25 miles from Richmond; six-room dwelling, kitchen, hen-house, about 60 colonies of bees, implements, etc. No malaria; very healthy. Price, real estate, \$750; bees, etc., about \$250. R. F. RITCHIE, Richmond, Va.

**WANTED.**—To exchange second-hand 60-lb. cans, boxed, practically as good as new, at 35 to 40 cts. per case, f. o. b. at Chicago, for extracted clover honey at its market value.

B. WALKER, 28 33d Place, Chicago, Ill.

## PAGE & LYON,

New London, Wisconsin.

MANUFACTURERS OF  
AND DEALERS IN . . .

### BEE-KEEPERS' SUPPLIES. . . .

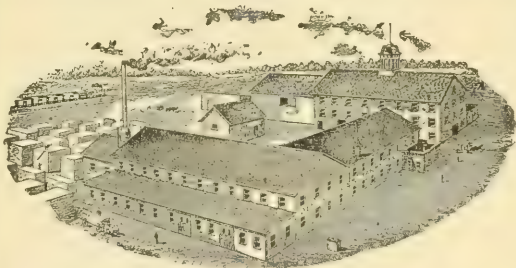
Send for Our Free New Illustrated  
Catalog and Price List. . . . .

## Now Ready!

### Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

J. M. Jenkins,  
Wetumpka, Elmore Co., Ala,



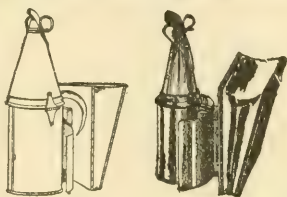
## BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Suppers, etc. Write at once for a catalog.

— AGENCIES —

Kretchmer Mfg. Co., Box 60, Red Oak, Ia.

Trester Supply Company, Lincoln, Neb.  
Shugart & Ouren, Council Bluffs, Ia.  
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used.  
Truly yours,  
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

## Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.



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## Honey Column.

### GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

### CITY MARKETS.

COLUMBUS.—Fancy white comb, 17; No. 1, 16.  
Sept. 9. EVANS & TURNER, Columbus, O.

CHICAGO.—Comb honey is beginning to come forward, and is meeting with fair demand, the prices at present being 15@16 for the best lines of No. 1 to fancy white; other grades wanted at 2@5c less per pound, but they are scarce. Extracted sells at 6@8 for white, according to kind and quality; 5½@7 for the amber grades. Dealers are seeking what they term a honey flavor more than ever before, as they say their customers demand more than a pleasant sweet taste in honey. Beeswax is scarce, and brings 30c.

R. A. BURNETT & Co.,  
Sept. 9. 199 South Water St., Chicago, Ill.

CINCINNATI.—New comb honey is not coming in so plentiful so far, but whatever has come in, and is fancy water-white, has sold to stores from 15@16. Fancy honey kept over from last year sells for 14. The market for extracted is more lively, bringing as follows: Amber, 5@5½; alfalfa water-white, 6@6½; white clover, 7@7½. Beeswax, 28.

C. H. W. WEBER,  
Aug. 29. 2146 Central Ave., Cincinnati, Ohio.

SAN FRANCISCO.—Comb honey, 10@12. Extracted water-white, 6@6½; light amber, 5½@5¾; dark amber, 4@5. Beeswax, 27½@30. Honey is firm at prices quoted.

E. H. SCHAEFFLE,  
Aug. 22. Murphys, Calif.

KANSAS CITY.—The demand for comb honey is good. Receipts are not large. We quote to-day fancy white comb 14; No. 1, 13@13½; No. 2 light amber, 12@13c. Extracted white, 6; amber, 5@5½. Beeswax, 22@25.

C. C. CLEMONS & Co.,  
Aug. 30. 306 Grand Ave., Kansas City, Mo.

BUFFALO.—New honey is coming in very slowly. The demand is very light owing to the warm weather and lots of fruit in the market. New fancy white comb, 15@16; A No. 1, 14½@15; No. 1, 13½@14; No. 2, 12@13; No. 3, 11@12; amber, 11@12½; dark, 10@11. Extracted white, 6@6½; dark, 5@5½. Beeswax, 28@30.

W. C. TOWNSEND,  
Sept. 9. 167 Scott St., Buffalo, N. Y.

SCHENECTADY.—We have received one lot of buckwheat comb honey, and from present indications it will be as scarce again this season as last. We quote No. 1 clover 14@15. No. 2, 13½@14; buckwheat, 11@12½. Extracted, in kegs, light, 6@7; dark, 5@6.

CHAS. MCCULLOCH,  
Sept. 9. 523 State St., Schenectady, N. Y.

NEW YORK.—Comb honey is now beginning to arrive freely and finds ready sale at following prices: Fancy white, 15; No. 1, 13@14; No. 2 and amber, 11@12. No arrivals of any buckwheat as yet. Good demand for extracted at unchanged prices. Beeswax quiet at 27@28.

HILDRETH & SEGELKEN,  
Sept. 8. 265-7 Greenwich St., New York City.

TORONTO.—Fancy comb, \$1.60@2.00; A No. 1, \$1.40@1.50; No. 1, \$1.25@1.30. Extracted honey, white clover, good body, 8c per lb. Some was bought at 9, and even at 10, but the crop turned out better than was anticipated, and bee-keepers are willing to take less. It seems a mistake that bee-keepers are all crowding their produce in the market at the same time, and what they can not sell they consign to commission-houses, who will always break the price.

Sept. 10. M. MAYER & SON, Toronto, Can.

ALBANY.—Honey market improving in demand, and weather colder. Receipts light as yet. We quote fancy white comb 16; A No. 1, 15; No. 1, 14@15; mixed, 13@14; buckwheat, 13. Extracted, mixed, 6½@7; buckwheat, 5½@6. Beeswax, 28@30.

MACDOUGAL & Co.,  
Sept. 11. 375 Broadway, Albany, N. Y.

NEW YORK.—There is now a good demand for comb honey. Fancy comb is selling at 16; No. 1, 13@15; amber, 11@13. Southern extracted, in barrels, 4½@5½. Beeswax, 27@28.

FRANCIS H. LEGGETT & Co.,  
Sept. 9. Franklin and Varick Sts., New York.

FOR SALE.—Fine quality of extracted honey, both clover and sweet clover, in 60-lb. cans, at 8c; also bees in L. frames. Do not send local checks.

DR. C. L. PARKER, Sta. A., R. F. D., Syracuse, N. Y.

FOR SALE.—100 cases (two cans each) of fancy white clover extracted honey, at 8 cts. per pound. No better gathered by any bees anywhere. Will shade ¼c in 25-case lots.

WM. A. SELSER, Jenkintown, Pa.

FOR SALE.—Extracted honey—clover, amber, or buckwheat—in 170-lb kegs. Write for prices before buying elsewhere. Sample, 8c.

C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Light extracted honey; cans and kegs, 7@8c per lb. Sample, 8c.

I. J. STRINGHAM, 105 Park Pl., New York City.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

WANTED.—10,000 lbs. choice basswood extracted honey and 2000 lbs. well-ripened light amber at once. Will pay 7½c for basswood, f. o. b. West Bend.

H. C. AHLERS, West Bend, Wis.

FOR SALE.—White extracted honey from alfalfa in 60-lb cans, at \$1.50 each; light amber honey mixed with Rocky Mountain bee-plant, fine flavor, \$1.20 each. Prices on small cans and pails on application.

M. P. RHOADS, Box 216, Las Animas, Colo.

WANTED.—Comb and extracted honey. State price, kind, and quantity.

R. A. BURNETT & Co.,  
199 South Water St., Chicago, Ill.

WANTED.—Comb honey, white or amber, for cash or on commission, clover preferred. Reference—The A. I. Root Co.

C. G. TURNER, Mechanic Falls, Me.

WANTED.—Offers of car lots of honey, especially comb honey. Cash paid on delivery at your warehouse or station.

THOS. C. STANLEY & SON,  
Apiarists and Honey Buyers,  
Manzanola, Col., or Fairfield, Ill.



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Weekly  
American Bee Journal.



We have arranged with several of the best queen-breeders to supply us with **The Very Best Untested Italian Queens** that they can possibly rear—well worth \$1.00 each. We want every reader of *Gleanings* to have at least one of these Queens.



As the supply of these splendid Queens is limited, we prefer to use all of them in this way—for getting new subscribers. But if any one wishes to purchase them aside from the *Bee Journal* subscription, the prices are as follows: One Queen, 75 cents; 3 Queens, \$2.10; 6 Queens for \$4.00.



We expect to be able to fill orders by return mail, or almost as promptly as that, so there will be no great delay, at any rate.

Remember, the *Weekly American Bee Journal* one year and the Queen—both for only \$1.25—to a NEW subscriber.

Now for your name and \$1.25—and then the Queen that we will send you. Address,



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144 & 146 Erie Street, CHICAGO, ILL.

Sample copy of the *American Bee Journal* and Catalog of Root's Bee-Keepers' Supplies FREE.





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If not, why not ? Perhaps you have never seen a copy. If not, send for one now—it's free. *Send us 10 cents and the names and addresses of five farmers and we will send you the paper one year.* Clubbed with this paper. Write for price. Address

**MODERN FARMER, St. Joseph, Missouri.**

**BEEES FOR SALE.**—100 colonies of leather-colored and golden Italians in nine-frame hives on Langstroth-Hoffman standard frames. My leather colors have again taken first premium at the Minnesota State Fair this year, same as they did last. Delivery at any time before winter. Ample stores guaranteed. Singly, \$5 00; lots of 20, \$1.50 each, on car. W. R. ANSELL, Mille Lacs Apiaries, Milaca, Minn.

**FOR SALE.**—Extracted honey, from alfalfa, at 7½¢ for No. 1 select, 7¢ for No. 1, 6½¢ for No. 2; discount on 1000-lb. lots. Send for sample.

D. S. JENKINS, Las Animas, Col.

**FOR SALE.**—Several thousand pounds comb honey in Danzenbaker 4×5 sections. Shall commence filling orders in August. WM. MORRIS, Las Animas, Col.

We can place a few cars of comb and extracted honey; will be glad to correspond with parties having some to offer. We also solicit local consignments

C. C. CLEMONS & Co., 306 Grand Ave., Kansas City, Mo.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.

SEAVEY & FLARSHEIM, 1318-1324 Union Avenue, Kansas City, Mo.

**WANTED.**—Fancy and No. 1 white comb honey; also gilt-edged extracted clover in 60-lb. cans.

B. WALKER, 28 33d Place, Chicago, Ill.

**WANTED.**—Honey and beeswax. Mail sample, and state price delivered at here. C. H. W. WEBER, 2146, 2148 Central Ave., Cincinnati, Ohio.

Mismatched Italian queens for sale at 25 cts., and hybrids at 15 cts.

C. G. FENN, Washington, Ct.

Mismatched Italian queens, good workers, 25 cts each.

W. F. STUART, Ottawa, Kan.

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Retail—Wholesale—Jobbing.

Having increased my shop-room, put in power and a new set of machines, I am now producing a better article than ever, with unlimited capacity to meet orders. I use a process that produces every essential necessary to make it the best and most desirable in all respects. My process and automatic machines are my own inventions, which enable me to sell foundation, and WORK WAX INTO FOUNDATION FOR CASH, at prices that are the lowest. I make a specialty of working up Wholesale and Jobbing Lots of wax into foundation, for cash. If you have wax by the 100 lbs. or ton, let me hear from you. Catalog giving

## FULL LINE OF SUPPLIES

with prices and samples, free upon application. **BEE SWAX WANTED.**

**Cus. Dittmer,**  
**Augusta, Wisconsin.**

**1200 FERRETS.** All sizes; some trained; first-class stock. New price list free. N. A. KNAPP, Rochester, Lorain Co., Ohio.

**Angora Goats** are handsome, hardy, profitable. Prize stock; low price; circular. ED. W. COLE & Co., Kenton, O.

## Marshfield Manufacturing Company.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

**Marshfield Manufacturing Company, Marshfield, Wisconsin.**

## I. J. Stringham, New York City

105 Park Place.

### Honey=jars!

1-lb. square jars, \$5.00 per gross; No. 25 jar, porcelain top, \$5.75 per gross; nickel cap, fancy, \$5.50 per gross. All clear flint glass. We ship from N. Y. City. Cartons, shipping-cases, every thing a bee-keeper uses. Tested Italian Queens, \$1.00; untested, 70c. Catalog free. Apiaries are located at Glen Cove, Long Island.

## Fancy Glassed Comb Honey Wanted!

We are in the market now for some fancy glassed (glassed on both sides of each section) comb honey. Will pay a fancy price for a fancy article. Advise us at once of how much you have, and what gathered from.

A. L. Boyden, care of The A. I. Root Co., Medina, Ohio.

## Orders Shipped Promptly.

We are running our large factory and shipping-department DAY and NIGHT, and are therefore in position to make prompt shipment of orders.

**Lewis White Polished Sections are Perfect.** Last winter's cut of Wisconsin basswood is the whitest we have ever seen. When you order No. 1 Sections from us you will get a strictly No. 1 grade in both workmanship and color.

**Our Bee-hives** are made of a fine grade of lumber and are perfect in workmanship. A full line of every thing needed in the apiary ready for prompt shipment. Catalog mailed on application.

**A Suggestion.** Do not put your money into *new-fangled* bee-hives, but buy a simple, serviceable, and well-made hive such as the regular Dovetailed Hive, arranged for beeway sections. Honey-producers in Colorado, one of the largest honey-producing sections in the world, use this style.

**G. B. Lewis Company, Watertown, Wis.**

## Queens Now Ready to Supply by Return Mail.

**Golden Italians** have no superiors and few equals; untested, 75c; 6 for \$4.00.

**Red-clover Queens** which left all records behind in gathering honey; untested, \$1; 6 for \$5.

**Carniolans,** the so highly recommended, being *more* gentle than others; untested, \$1.00.

~~~~~ Root's Goods at Root's Factory Prices. ~~~~~

C. H. W. Weber, 2146, 2148 Central Av., Cincinnati, Ohio.

Successor to Chas. F. Muth and A. Muth.

A JOURNAL DEVOTED
 TO BEES
 AND HONEY
 AND HOME
 INTERESTS.

ILLUSTRATED
 SEMI-MONTHLY
 Published by THE A. J. COY. CO.
 \$1.00 PER YEAR MEDINA, OHIO.

VOL. XXX.

SEPT. 15 1902.

No. 18



THE FAILURE of the crop of white honey has one redeeming feature: it makes one wonderfully thankful for a fall flow. [Then you are getting that fall flow, and therefore are thankful. We are now getting a strong flow from goldenrod. We are thankful too.—ED.]

GUENTHER says in *Imkerschule* that in an experience of 50 years with hundreds of colonies he has never known drones to be wintered over with a laying queen, and he is doubtful about it with queenless colonies. He thinks drones found in spring are reared in spring, an occasional drone being reared in the middle of the brood-nest.

MRS. HARRISON uses granulated honey to sweeten tea and coffee, p. 739. Why granulated? I've used a good deal of it liquid for the same purpose; and every morning as soon as the tea-kettle boils I have a bowl of hot water sweetened with extracted alfalfa honey. But it has just occurred to me that possibly granulated might be better than liquid if the thin part were drained off and only the dry granules used. Guess I must try it.

IN MAKING a forced swarm, is it best to leave part of the bees on the combs or to make a clean sweep of it? Depends entirely on what is to be done with the combs after the bees are shaken off. If the combs are to be set on a stand by themselves, leaving them without any bees would result in chilled brood often if not always in this locality (it might be different in a hotter climate), to say nothing about robbing. If the brood is to be placed over other strong colonies (and this practice is highly commended across the water), then every bee should be brushed off. [Locality certainly should have a bearing in this case.—ED.]

BRO. DOOLITTLE thinks a nucleus can do good work building comb, p. 722. Let me indorse that by telling what a *one-frame nucleus* has done for me this summer. I gave it an empty frame with a starter of foundation of perhaps 20 square inches. In a week the frame was filled nearly full of beautiful comb, every cell worker. I took it away and gave another empty frame, and this has been the weekly program throughout the whole summer. [We have had a like experience.—ED.]

IN VIEW of A. J. Wright's article, p. 737, Mr. Editor, you think it may be a mistake to believe the drones of laying workers virile. There is nothing in the article to prove the impossibility of their being virile. Although he found no spermatazoa, yet he says, "cells were found in limited number, from which I believe the spermatazoa are developed." So if a queen were fertilized by such a drone we might expect her to play out in a little while. [You are possibly right. I'd like to see this question gone into more deeply.—ED.]

SPEAKING of shook, shaken, shoooken, or shooked swarms, some of the talk about them sounds as if it made a difference whether they were shaken or brushed. I don't see how it could make a particle of difference how the bees are got off the combs, only so they are got off. I should shake in all cases to get most of the bees off, using the brush for the last few bees if the combs are to be left clean of bees. Neither should I refrain from shaking if there was a lot of thin honey in the combs; it doesn't hurt the bees a bit to get a bath of that kind.

W. K. MORRISON gives us an interesting article, page 727, but is rather pessimistic when he discourages undertaking bee problems at State experiment stations because the right men for the work are not to be found. Hon. R. L. Taylor did some excellent work of that kind, his work being enhanced in value by the fact that he kept bee-keepers constantly informed through the bee journals as to what he was doing. J. M. Rankin may be doing good work in

the same State, but he never tells us any thing about it. I suspect some might be surprised to know how much Prof. Benton is doing, and I wish he would get in sight a little more in the bee journals. We've got the men all right enough, just as much as they have across the big pond.

PROF. HODGE, p. 736, says I may "pooh-bah" at his preachment upon honey for children. Never a "pooh-bah," professor. I indorse all you say, and wish you would give us a like preachment on the value of honey for old people. More is made of this in Europe than in this country. The heaviest consumer of honey in my family is my wife's mother, a blessed old Scotch lady in her 84th year, with an intellect as clear as a bell and a memory to beat any of us youngsters. She takes her cup of hot water and honey before breakfast regularly, and uses a generous supply of honey at the table at least once a day (she never uses it in her tea or coffee, for the only tea or coffee she uses is a glass of milk), and she has a temper as sweet as the honey she eats.



Slowly fades to red and brown
 Summer's vernal hue;
 Angry storm-clouds, dark and chill,
 Take the place of blue.

The proceedings of the 27th session of the American Pomological Society, held in Buffalo, a year ago, in conjunction with the bee-keepers, is now before the public in printed form. At that time, it will be remembered, there was much said relative to bees attacking sound fruit. From some remarks made by Dr. James Fletcher, Dominion Entomologist, Ottawa, Canada, I make a few extracts which ought to be enough to settle the question for all time. He said:

At the last meeting of the Ontario Bee-keepers' Association I had the pleasure of delivering an address on the "Value of Bees in Fruit Orchards," in which, among other subjects, I discussed the burning question of whether bees did or could injure the fruit-grower by attacking sound fruit on the trees. The position I took at that time was that, unless fruit was first broken or injured, honey-bees could not gain access to the juices of the fruits. It appears to me now, however, that the ability of bees to puncture ripe fruit need not take up so much discussion at bee-keepers' meetings as has on some occasions been given to it. If it is so very doubtful whether they can or can not cause injury, it seems *prima-facie* evidence that even if this is possible, which I do not believe the injury occurs so seldom that it need not be considered. If it were a frequently occurring or important injury, some of those who have watched bees either as friends or enemies would have been able to settle the matter long before this. Another subject taken up by me at the time referred to, was "Bees as Fertilizers of Flowers;" and at the request of President Root, of the Na-

tional Bee-keeper's Association, I have prepared a short paper for this evening's meeting on that subject, in which I shall direct your attention to the striking interrelation of plants and insects, and in which I trust that I may be able to lay before you facts which may be new to some of your members, must be of interest to all, and can not but call forth admiration for the marvelous provisions which are to be seen everywhere in nature for the bringing about of good and useful results and preventing waste. It will be found that not only are flowers absolutely necessary to bees, as the source of their food—nectar and pollen—but that bees and other insects are no less necessary to most flowers, so that their perpetuation may be secured. This fact should be recognized by the fruit-grower above all others, for, were it not for insects, and particularly for the honey-bee, his crops of fruit would be far less than they are every year, and even in some cases he would get no crop at all. Failure in the fruit crop is more often due, I think, to dull or damp weather at the time of blossoming, which prevents insects from working actively in the flowers, than to any other cause.

The entire essay is very interesting, as it gives a vivid description of the means employed by nature to induce fertilization of flowers; but as the entire tract can be had free, I suppose, by applying to the printers, The Robert Smith Printing Co., Lansing, Mich., I would refer the reader to that.

The above was followed by an essay equally good by Prof. M. B. Waite, of the United States Department of Agriculture. Speaking of the agency of bees in attacking cracked fruit he says:

Wasps and puncturing insects are the ones which usually make the openings, especially in perfectly sound fruit. However, bees rapidly follow in the punctures by other insects. In June and July hundreds and thousands of bees may be seen swarming over the early-ripening peaches and Japanese plums, and in going over the rotten fruit they carry the spores into the wounds made by the wasps and soldier bugs, and into weather cracks. The peaches cracked open badly by the wet weather this year. Oldmixon was the worst in Maryland, but even varieties like Elberta showed a great many weather cracks. Into these cracks the bees penetrated. They even ate large holes in the fruit. I have seen a hole large enough to hold three bees inside of it, and on gathering the fruit they were so busily engaged that they were still at work inside the hole.

Mr. Waite also shows that bees have been instrumental, in his opinion, in carrying the germs of pear-blight; but the danger or damage from this source is rare and slight at best, and Mr. Waite places the following to the credit of the bees:

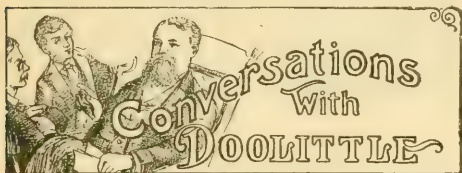
The pear-blossom is a very open one, and is very extensively visited by a whole list of insects. I started out to get a list of insects which visit pear-blossoms; but when I reached the number of forty I gave it up. Nearly all the flying insects, the bee being most active of all, but even beetles and wasps, and occasionally even a humming-bird (the latter, of course, not being an insect) visited the pear-blossoms, and carried the disease along.

The blossom of the pear is not of the type of wind-fertilized blossoms, but is distinctly of the insect-fertilized type. Now, this matter is so complicated that it will be impossible, in the short time at my disposal, to go into the details of fertilization. To make the story short, we may say that, from the biological standpoint, the bees are doing their normal, natural work in visiting the pear and apple blossoms. The blossoms are for the bees to pollinate, are developed by insects, and the insects have been developed in correlation to them. It is a normal, biological process, this visiting of orchard fruit-blossoms by bees. The bees are there performing their proper function.

In regard to the time of spraying trees, Prof. S. A. Beech says, after explaining the mechanical process of the fertilization of an apple-blossom;

Since the essential organs are composed of very tender tissues it is not surprising that injury may follow when they are hit by the spray mixtures. Neither is it strange that Bordeaux mixture should prevent the germination of the pollen. The Bordeaux mixture holds its position as a leading fungicide because it prevents the growth of fungous spores. The germination of pollen is more nearly analogous to the germination of fungous spores than to the germination of grain. Since the Bordeaux mixture is deadly to the one it may be expected to have a similar effect upon the other. That it does not have such an effect is proved by laboratory experiments which formed a part of the investigations previously mentioned. The ordinary combination of Bordeaux mixture with an arsenical poison prevented the growth of pollen in laboratory cultures, as also did even lime alone, while in corresponding cultures in which these substances were not present the pollen germinated and pollen-tubes grew. Bordeaux mixture alone, of the one-to-eleven formula, was added to cultures in varying proportions and the effect was remarkable. With 200 parts of it in 10,000 parts of the culture media the growth of pollen was practically prohibited; for the pollen did not grow except in rare instances; 100 parts in 10,000 in some cultures, but not in all, wholly prevented the germination of the pollen; sometimes 50 parts in 10,000 gave a similar result, and even the very slight proportion of two parts in 10,000 in some cases showed an unmistakable adverse influence on pollen germination. Since pollen must alight upon the stigmatic surface and there germinate before fertilization can take place these results are highly significant to the fruit-grower. From the facts which have been presented it is clear that applying the spray mixtures on the open blossoms, instead of assisting directly to set the fruit, it may wholly prevent it.

Every bee-keeper should get a copy of this interesting document for his own use, and a dozen more for his neighbors. It is the most elaborate treatise on the relation of bees to fruit ever printed.



HOW MAY WE SECURE WORKER COMB WHEN BUILT BY THE BEES?

"Good morning, Doolittle. Too cold for the bees to work this morning, and here it is nine o'clock the 16th day of August."

"Yes, it is very cold for the time of year, Mr. Brown. The mercury stood at only 10 degrees above freezing this morning, and the same on the morning of the 13th. I fear we are not going to get much buckwheat honey, on account of the cold, as it is now nearly in full bloom; and the hives do not have at present one-fourth enough honey in them for winter; and unless we have a yield from buckwheat it means feeding for winter stores—something I have not had to do for twelve or fifteen years past. But we will not dwell on this part of the matter. What can I do for you this morning?"

"Having no surplus honey this year, with a prospect of buying sugar for winter stores, owing to our wet cold summer, I thought to economize a little by having the bees build their own comb in the frames next season instead of buying foundation,

as I have generally done. I read somewhere that you had the most of your combs built in the frames without the use of foundation, only as starters, so I came to talk the matter over with you."

"Yes, I have allowed the bees to build many combs in the frames, and mainly did this when I first began bee-keeping. But what part of this comb-building has bothered you?"

"In taking out the combs and inserting frames having only a starter, I find the bees almost invariably build drone comb."

"Yes, that is as I have found it all along my bee-keeping life, for the same has shown that it is folly to insert a frame, having only a starter in it, in a full colony previous to the swarming of that colony, with the hope of getting much if any worker comb; and if frames must be inserted in such colonies at such times, it will pay the apiarist to purchase comb foundation for such frames, even though he has no surplus honey, rather than try to get them filled by the bees."

"But suppose we have worker combs on hand for such times."

"That would be all right; in fact, I consider built-out combs even better for such places than frames filled with foundation; for where only one or two frames of foundation are placed in a hive between combs, when honey is coming in from the fields, the cells from the comb along the top-bars to the frames are extended so they jut out into the space that belongs to the frame having the foundation in, before the foundation is drawn fully out, so that we have "fat" combs in some frames and "lean" ones in others, in a way that causes much trouble in exchanging them, especially in hives having frames at fixed distances."

"But these extra combs cause us to presuppose that they have been built some time, so we come to the main idea how to secure extra frames of worker comb without using full sheets of foundation."

"I find that there are three conditions of the hive or colony under which, if rightly managed, the bees will almost invariably build worker comb."

"Now you are talking about just what I wished to know. Tell me about the condition you consider best."

"The surest of the three ways is when a colony is quite weak, or what we term a nucleus. If such a colony is deprived of all of its combs save one of honey and one of brood, and a frame having a starter in it is inserted between the two combs left in the hive, the bees will, ninety-nine times out of a hundred, fill that frame with worker comb, and said comb will be as perfect as one built from foundation under the most favorable circumstances. Taking advantage of this fact, I take frames of brood from the weaker colonies I have at the beginning of the honey-flow, those too weak to work in sections to advantage, and give this brood to the weaker of the stronger colonies, and set the weak colonies to build-

ing comb, as I have explained. You will note here that I really make a gain in this way as to surplus honey, for this brood, where placed, gives better results in section honey than it would have done had it been left where it was with the weak colony, as it almost immediately puts the bees of the colony where given (into the sections) at work, while, had the brood remained in its own hive, these colonies would have been somewhat slow in starting in the sections."

"Well, that is quite a scheme, surely; for we can really kill two birds with one stone in this way. I wish I had known of this matter last year, as I had several colonies that I could have worked that way. But what of the second-best plan?"

"The second is, at the time of hiving new swarms, which are treated in this way when I wish them to build worker comb. The swarm is hived on the full number of frames the hive contains, and left for 36 to 48 hours, a super of sections being put on when the swarm is hived. The hive is now opened, and five of the frames are allowed to remain—the five that have perfect worker comb being built in them, and dummies are used to take the place of the frames taken out. This throws the force of bees, not needed below, into the sections, so that the bees do not need to build any store comb in the brood-nest, which store comb, when built for that purpose, is generally of the drone size of cells. By this time the queen is ready to keep up with the bees in their comb-building, with her eggs; and in this way, nine times out of ten, I get these five frames filled with worker comb, and, besides, secure a good yield of section honey."

"Why do you wait from 36 to 48 hours about arranging the hive? Why not give only the five frames at the time of hiving?"

"Glad you asked that question, as I should have forgotten to speak of something that would have bothered you had I not told you. In the first place, a swarm given only five frames when hived, is liable to think the place of abode too small, and leave, or swarm out, and such a procedure is a nuisance. In the next place, when any colony having an old or laying queen is first hived, the bees are likely to build comb too fast for her, hence some of the combs first started are liable to be of the drone size on account of the queen not being in condition to lay many eggs at first, as all queens cease almost entirely to lay for 24 hours previous to swarming, so that they may be reduced in weight that they may fly and accompany the swarm; and full prolificness does not return under 48 hours after the swarm has commenced keeping house in its new home. And as these combs having the drone size of cells are just right for store combs, the bees generally, when once started, keep right on with that size of cells till the bottom of the hive is reached."

"I see now why I have had so much

drone comb built when hiving swarms without giving frames of foundation, and I am glad to know of this matter. But I must soon be going; but I should like to hear of the third plan before I go."

"The third condition under which worker comb will be built is just after the young queen gets to laying in any colony having cast a swarm. If, after she has been laying two or three days, we take away two or three combs and put frames with starters in their places, we shall find that these frames will be mainly filled with worker comb. As the bees are now over the swarming fever, and desire worker bees to promote the welfare of the colony, no drones are needed, and the young queens are not likely to lay in drone comb. However, we are not quite as certain of all worker comb in this case as we are in either of the other two, as there are plenty of built combs in the hive for the young queen to use, and it sometimes happens that the bees will prefer to leave off storing in the sections and build store comb in the frames, thus defeating what we are striving to attain."

"Well, thanks until you are better paid. I will try all the plans next year, and then I can tell more about how the matter works with me. Good day."



IN our last issue I spoke of the fact that there were large quantities of white clover, red clover, and alsike, in bloom. This is quite unusual; and Mr. Wardell, our apiarist, who has had many years' experience as a farmer and bee-keeper, says he has never known a second crop of white clover to yield honey.

THE great National convention at Denver was a success. The attendance was large, and the number of delegates from the various States was greater, I think, than at any previous meeting of the Association. In the matter of hospitality and warm-hearted welcome, the Colorado bee-keepers have set a pace that it will be hard for any State or city that may entertain the National in the future to beat. Further particulars will be given in our next.

"IRRIGATION FARMING" is the title of a 500-page book by Lucius M. Wilcox, editor of *Field and Farm*. It is published by the Orange Judd Co., of New York, and is just from the press. From a hasty glance at the work, and from what I know from personal observation of irrigation in the West, the author evidently understands the sub-

ject of which he treats. I know that many of our subscribers in the East as well as in the West are interested in this subject; and they can do no better than to send to the O. Judd Co., as above. The price of the book is not mentioned.

THE DROUTH IN TEXAS.

WHILE we bee-keepers of the North-Central States have been suffering from an excessive amount of rain and cool weather, the bee-keepers of Texas have been "enjoying" the very opposite condition—drouth, parched ground and vegetation, and a long, long waiting for rain that came too late. It has been many a year since bee-keeping came so near being a failure in the Lone Star State; for it is one of the few States where the bees make a good living for themselves and their owners nearly every year.

There are thousands of acres of unoccupied territory remote from centers of population, that will support bees. Those who desire more information would do well to write to Mr. Udo Toepperwein, 438 West Houston St., San Antonio, Texas. He will take pleasure in steering you into localities where you will not be encroaching on some other person's territory. But do not go anywhere without making a thorough investigation, writing to everybody you can get hold of. So far as possible we shall be willing to furnish names of parties in such localities.

MR. TOEPPERWEIN AND HIS BRIDE.

DURING the first of September we were honored with a call from Mr. Udo Toepperwein and wife, who were then on their wedding-trip. Mr. T. has charge of the Root Co.'s branch at San Antonio, Texas. He is a stalwart six-footer of fine appearance and pleasing address. Mrs. T. seems to be a full complement of her "other half."

It will be remembered that, some time ago, I took a picture of Mr. T. at his home in Texas. I asked him to look his very prettiest and imagine that his "best girl" was looking at him. He complied with my instructions, and I put the result, picture and all, in GLEANINGS. At the time I stated that our friend had no best girl; that he was of marriageable age, good-looking, honest, and good; and that the girl who was lucky enough to get him would get a prize, and (would you believe it?) our friend received four letters from some nice young ladies. To all of these he turned a deaf ear, as it was not his style to court at "long range." Well, to make a long story short, he grew tired of single blessedness and of boarding out, and has now taken unto himself a helpmeet from his own city, and proposes to live henceforth in good orthodox fashion.

GLEANINGS extends its congratulations, and wishes the well-matched couple a life of happiness and prosperity. Perhaps a little later on I may be able to introduce to you the better half, having shown some time ago—well, perhaps the "poorer" half.

EXPERIMENTS MADE AT MEDINA ON THE VARIOUS METHODS OF RENDERING WAX UNDER PRESSURE.

AFTER having tried various plans sent to us for rendering wax out of old comb, we think we have devised a method whereby a home-made machine can be built that will do very good work, although, of course, not so rapidly nor so conveniently as our German wax-extractor. The accompanying engraving was made before the experiment was performed, hence a few changes will be apparent, as all theories are more or less changed in actual practice.

The tub can be made of an ordinary water-tight barrel, sawed off to make it about one foot in depth. The sides and bottom should be ribbed with sticks to allow the wax to flow off more easily. The plunger is simply a heavy round board with cross-pieces to strengthen, and also ribbed underneath.

To begin operations, wrap up securely about 5 lbs. of old comb or slumgum in cheese-cloth, and place the package in the tub. The best results can not be obtained if, after pressing, the "cheese" is more than an inch and a half thick. By experience only can one tell how much slumgum to take, for the amount of wax differs.

Next, pour over the package of slumgum one good-sized pailful of boiling water, and, after letting it stand a moment, until the wax begins to come to the surface, apply the pressure. We do not think it practicable to try to get the wax off the top of the hot water, either by dipping or by a spout, as is shown in the engraving. The layer of wax is so comparatively thin that it is better, after pressing, to pour off water and wax together. After standing awhile the wax will harden and be in good shape for melting up for market, etc. From the small amount of hot water that is needed, it is less trouble to change it each time; for if three or four pails are kept going it will be an easy matter.

After the pressure is applied once thoroughly, turn the water and wax off; double the cheese over, and again squeeze it. By actual weight, 15 oz. was obtained the first time from 4 lbs. of old comb, dirt, etc., and 5 oz. the second. A third pressing does not pay.

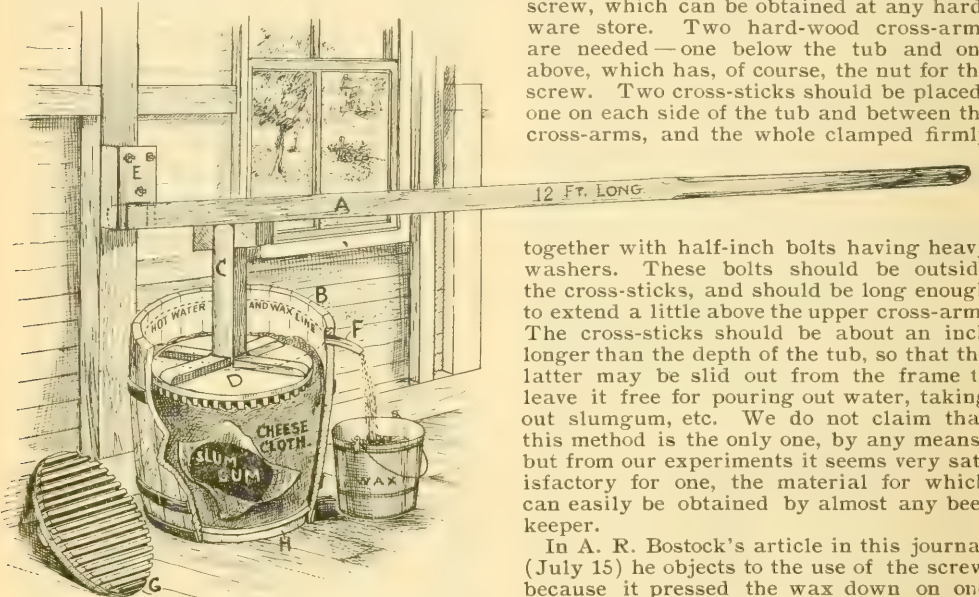
There are a great many inquiries as to which is most convenient, rapid, and thorough—pressure under hot water, pressure in steam, or pressure on wax that has been heated in another vessel. With hot water one can get the same amount of wax as with steam, other things being equal; but it takes longer, and is more complicated. It has been suggested that the hot water will do better work than steam because of the fact that, since wax floats on water, the minute that a particle of wax is pressed out from the cheese-cloth it will rise to the surface out of the way—acting on the principle of "taking in the slack." Those who suggested this, however, had not tried both plans, and admitted that the idea was

simply a theory. If they would try they would find, as we have done, that the wax will drop down from the slumgum when steam is used, just as readily as it will float up in the hot water.

We have not had success with the third method, although some may have had. It is very difficult to keep the wax from burning when heated in another place unless it is heated in hot water. If this is done, part of the wax will melt out and come to the surface, just enough of it to cause trouble, and yet too much to throw away entirely. After burning one's fingers in getting the hot wax transferred from the heating-pan to the press, a great deal of heat will be lost; and when the wax comes in contact with the cold press it is so chilled that not all of it can come out; and what does come, often sticks to the cheese-cloth, and refuses to run.

twelve-foot oak lever. So a lever for a large machine is out of the question; but for this home-made press, where smaller amounts of refuse are worked with, it is another matter. We will discuss both the lever and the screw, and let the reader try both if he desires.

The lever is much quicker to operate, and does, on the average, as good work, because it has the power to press the small amount of old comb or slumgum down to a thin layer. But the screw will do the same work with very little effort, only it takes a little longer; also, the lever must have a very strong support, such as a good stout post and floor, and it makes one man work very hard to operate it. Very likely some, after trying both, would prefer the lever and some the screw. The engraving shows clearly how the lever is operated. The screw is an ordinary carpenter's bench-vise screw, which can be obtained at any hardware store. Two hard-wood cross-arms are needed—one below the tub and one above, which has, of course, the nut for the screw. Two cross-sticks should be placed, one on each side of the tub and between the cross-arms, and the whole clamped firmly



A, lever, 12 feet long; B, half a reel; C, standard; D, cleated pressure-disk; F, block, bolted to house; E, spout for wax as on top of hot water; Dotted line shows hot-water and wax line; H, loose piece of wood to prevent the bottom from being pressed out; G, under side of D, showing cleat.

Some one may say that continued pressing will heat the press sufficiently to keep the wax from chilling. This is true in part; but some time must elapse before the next pressing, and this enables the press to become almost completely cold. So we confine our experiments now to steam or hot water; and, although we much prefer steam, we do not advocate its use in our home-made press, because of the difficulty most beekeepers would have in getting it.

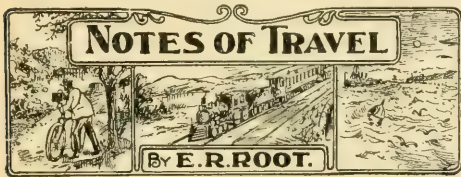
And now comes the question of the method of applying the pressure; viz., whether to use a lever or a screw. Actual figures show that a boy can exert more force with such a screw as is used on our German extractor than a man could with a four-inch

together with half-inch bolts having heavy washers. These bolts should be outside the cross-sticks, and should be long enough to extend a little above the upper cross-arm. The cross-sticks should be about an inch longer than the depth of the tub, so that the latter may be slid out from the frame to leave it free for pouring out water, taking out slumgum, etc. We do not claim that this method is the only one, by any means; but from our experiments it seems very satisfactory for one, the material for which can easily be obtained by almost any beekeeper.

In A. R. Bostock's article in this journal (July 15) he objects to the use of the screw because it pressed the wax down on one side of the pan and not on the other. Well, if he was careful to have his slumgum about level before he applied the pressure, and if his screw was as nearly perpendicular to the bottom of the pan as possible, he would not be bothered in this way. He also speaks of the pressure of the lever as being continual, and that of a screw requiring one to stand over turning it, which, he says, would hinder him from going away. If he used a screw by the method just described, the wax would all be squeezed out in a very few moments, and he would soon be ready to fix up a new batch so that he would have no desire to go away. He "considers" that he gets more strength from one lever than from several screws. If he would figure he would find that, with one screw, the same amount of force exerted, he would probably get the pressure of several levers.

The subject of wax-presses is one that needs very careful attention. One would

probably be astonished if he could know the actual amount of wax and money wasted in throwing old comb away, or even in depending entirely upon solar extractors. The subject is also a treacherous one. Plans that in theory seem perfect are very apt to have some serious defect in actual practice. On the other hand, some people may scoff at a method in theory, which, when the experiment is made, may prove very satisfactory. Therefore if there are those who feel inclined to answer this editorial we would ask that they give our method a most careful test along with their own or some other method before they condemn it.



SAN FRANCISCO ; BEE-KEEPING IN SUTTER CO., CAL. ; CARPET GRASS ; PLACER MINING, AND ITS EFFECTS ON AGRICULTURE ; HOW THOUSANDS OF ACRES OF LAND HAVE BEEN RUINED TO SATISFY THE GREED FOR GOLD.

Bidding our friend I. D. Flory good by I took the train for San Francisco, the famed city of the Golden Gate, situated on the beautiful Bay of San Francisco. I had heard of the wickedness of that great city, but I was not prepared to see such a "wide-

open town." Prostitutes, I was told, ply their vocation on some of the principal streets ; gambling goes right on in plain sight, apparently without let or hindrance. Saloons—why, they are thicker on the principal business streets than I ever saw elsewhere, and I have been in all the large cities of the United States. Suicides, I understand, are more frequent there than in any other city in the world except Paris.

But not all is bad in San Francisco, by any means. Some of the finest churches anywhere can be seen within a short distance from these gilded places of iniquity. Good people there are in large numbers, and the time will come—is *sure* to come—when they will be in the majority, and the political forces that now rule and make the town "wide open" will be put down, and the city, with its commercial advantages, will indeed become the *gateway of the world*.

The climate, while it is a little cool, is delightful and bracing ; and one feels a thrill of invigoration after leaving the hot desert lands of the interior of the State.

I met two or three bee-keepers, and just missed seeing T. G. Newman, formerly editor of the *American Bee Journal*, and General Manager of the National Bee-keepers' Association. I had a number of little chats with G. G. Wickson, of G. G. Wickson & Co., the supply dealers of San Francisco. Mr. Wickson has an extensive house-apiary a few miles from the city. This I did not see.

I next went northward to Sacramento, and met Mr. A. S. Hopkins, the local supply dealer, stopping for a few hours only. Then I went a little further north to Nicolaus, where are located the Wessing Broth-



THE CARPET GRASS THAT YIELDS SO MUCH FINE HONEY IN NORTH-CENTRAL CALIFORNIA.

ers, around whom seem to cluster the bee-keeping interests of Sutter Co.

This county, as a bee-keeping center, deserves more than a passing reference. At the time of my visit the United States government had sent a committee of Senators and Representatives to the little town to investigate the effect of placer, or, rather, hydraulic mining, on the fertile valleys. The greed for gold is so great that powerful streams of water (in the hands of rich syndicates) are turned against the sides of the mountains, practically undermining and washing them away so that the debris and silt wash down the rivers, overflowing their banks into the fertile valleys below, carry-

ever since) to the State and national governments, from the suffering ranchers, praying for relief. Immense dikes were then put up on each side of the river, to keep the water within its banks; but now and then the embankments would break, and the land would be devastated by a flood, crops ruined, and the people driven from their once fertile lands. In spite of protest, in spite of petitions, in spite of every thing, the gold-miners kept on with their work of ruin. The small amount of gold secured, I was told, would not *begin* to compensate for the fearful loss of land.

On this occasion of which I speak, the United States Senators and Representa-

tives were there to look after the interests of the ranchers, for certain it was the interests of the miner and of the farmer were conflicting. So bitter is the feeling that at times there is bloodshed; and as I looked over those conflicting interests I could not help thinking of the conflict of interests between the pear-men and bee-keepers.

But in this case the bee-men were suffering with the farmers, for the growing of alfalfa, that was once profitable, had been discontinued on a good many ranches, simply because the land was buried up under the silt from the gold-washings. In the mean time, while Congress is deliberating and doing nothing, the people are suffering, and the feeling between the rancher and the miner was becoming more and more strained.

A WONDERFUL HONEY-PLANT, CARPET GRASS.

But, very fortunately for the bee-keeper in Sutter Co., the demise of the alfalfa was followed by the beautiful little carpet grass. It thrives on dry land, and yields immense quantities of honey. It grows all over the vicinity, gives forth honey of the finest quality, from the middle of May until frost comes on in the fall. The bees will sometimes gather as much as 8 lbs. of honey a day

from it; but 3 lbs. is usually considered a good yield. From three-fourths to four-fifths of all the honey in Sutter Co. comes from this source; and so important has it come to be that the little alfalfa that is grown does not cut much of a figure in the production of honey.

The carpet grass makes a very thick and heavy matted growth; and as one walks over it he imagines he is walking on very rich heavy plush carpet, for it gives spring and elasticity to the step. Taking out my largest camera I took a full-sized picture of it, and the result, nearly life size, is before



J. H. ERICK'S ELEVATED BEE-YARD, END VIEW.

ing ruin and desolation in its wake. Among the chief sufferers from this destructive method of gold-washing were the people round about Nicolaus. So extensive had been the washings for gold that the old bed of the river had been filled up, and had overflowed its banks repeatedly, carrying silt and all sorts of debris over the land round about. Ranches that were worth large sums of money had become mere wastes, and the owners bankrupt. But bee-keeping, fortunately, was not entirely snuffed out.

A cry went up (and has been going up



J. H. ERICK'S BEE-YARD (SIDE VIEW).

But perhaps some of our readers will not recognize it under the name of carpet grass. It is known in Minnesota as "shower grass;" in some localities as "sheep clover;" in others as "mahala grass." I saw some of it in the vicinity of Hanford, and was told by Mr. J. F. Flory that it was an excellent honey-plant. Thinking some of our readers who are located in the vicinity

of dry lands would like to try it in their localities, I made arrangements with Mr. J. H. Erick, of Nicolaus, Cal., to supply the seed in small lots to all who may apply. I do not mean he will furnish it free, by any means; but he or the Wessing Brothers, of the same place, will, I believe, furnish it at a moderate price.

I am not in the habit of giving free ad-



ONE OF THE WESSING BROTHERS' BEE YARDS.

vertisements of this kind in our editorial columns; but I have an idea that carpet grass can be grown in other localities in the United States as a forage-plant for bees; for if it can have a hot dry climate it will spread, seeming to prefer lands that are barren and waste, just as sweet clover does in the East. I do not think it is a noxious weed; and those of our friends who wish to try it can, I feel sure, do so without any danger of bringing a pest to their localities.

I met several prominent bee-keepers in this vicinity, among them being the Wessing Brothers; one man who owns 700 colonies, but did not want his name given in print; J. H. Erick, just referred to; George M. Tyler, and a number of others.

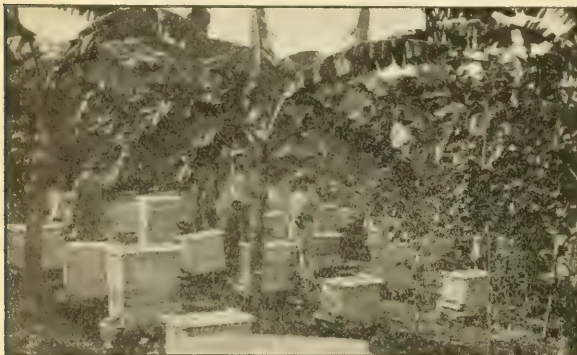
On account of the river overflowing its banks it became necessary for bee-keepers on the lower lands to put their hives up high on benches. I took two or three snap shots, one of the Wessing Brothers' yard and two of J. H. Erick's apiaries, which will serve as a fair sample of other yards in that vicinity. You will note that the hives are set up high, clear above ground, above the highest water-line, and are located in the shade wherever possible; for I understand colonies in the shade do better than those out in the sun.

RAMBLE 210.

A Trip to Guines; Bananas for Shade.

BY RAMBLER.

Senior Fred Somerford has much more sweetness about him than the average bee-man. Besides the honey from 700 colonies of bees he has tons and tons of sweetness from thirty acres of sugar-cane. He does not believe in carrying all his eggs in one basket, but has interests in cattle and hogs.



APIARY OF HEDDON HIVES UNDER THE BANANAS.

He thinks the bee business can never be learned, for every year new and perplexing conditions arise; but in the cattle business all is very simple. All he has to do is to



EXAMINING HEDDON FRAMES.

get 300 or more head of cattle, turn them out to pasture, and in a few months sell them for beef.

He is not an optimist about the future of the honey business in Cuba, as so much depends upon yields, tariffs, and demands. Still, he thinks even at present prices, if a person is willing to leave all social privileges, and get back into the remote parts of Cuba, there is money in it.

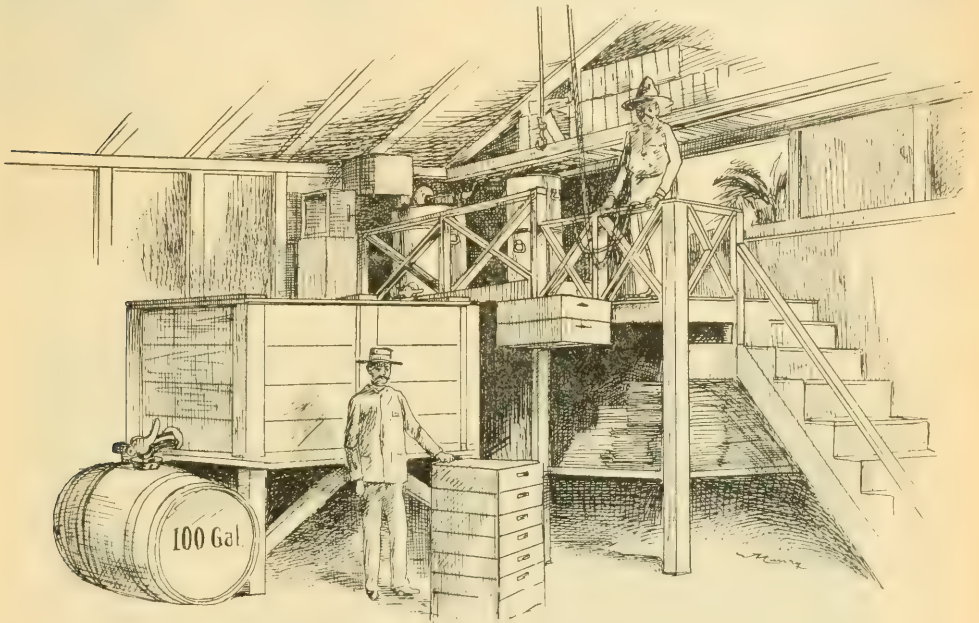
Senior Fred has just such a location himself. He is the only American in Catalina, and depends upon native help for all his work. He can talk Spanish like a native; and as he was a prominent factor in the insurrection, and on the Cuban side, these people all look up to him with much admiration, and come to him for advice upon all topics. This confidence of the natives is not abused for personal gains, and Senior Fred is really the head man in that portion of Cuba.

In our evening talks he informed me that I would be interested in an apiary out toward Guines; and what particularly interested me was the fact that the Heddon hive was used in the apiary. The next morning W. W. and I made an early start, and in two hours we found the farm of Dr. Carlos des Vernine, where he has an apiary of about 150 colonies, in Heddon hives. The doctor has a large medical practice in Havana, and has plenty of money to spend upon farming and bee-keeping, and every thing on the farm and in the apiary is up-

to-date, and made in the most substantial manner. Bananas gave shade to the hives, and I have found that quite a number of bee-men resort to this quick-growing and large-leaved tree for shade. The apiary was in charge of an alert young Cuban; and 800 gallons, or 8 bocoys, had already been extracted. The regular eight-frame hive and an occasional ten-frame hive are used; and the queen-excluder is freely used; and I think by keeping the queen down to one shallow super, the bees allowed her to fill it with brood, and put their honey all above. In this matter I saw one advantage of the Heddon hive above others; but Bro. Somerford would have none of it.

Perhaps the reader will remember how the Rambler overcame the problem of making a drop from tank to can in Central California; but here we find the doctor accomplishing the same thing in a different way. By referring to the photo you will first notice the 100-gallon bocooy. Above this is a 400-gallon tank; above this the four-frame Cowan extractor and a Dadant uncapping-can. We might dignify this elevation as the gallery, fully seven feet from the floor, and having a substantial railing around it, and provided with substantial stairs.

The supers to be extracted are piled on the floor, and two hives at a time are elevated to the gallery by the rope and pulley,



EXTRACTING HOUSE AND OUTFIT.

I discovered that the hive was somewhat in disfavor on account of the swelling propensity of the frames and thumbscrews; then the hive must be well made to work smoothly, and it was evident that some mistakes had been made in the putting-up of these hives. It is quite possible that the inventor of the hive had an idea that he had reached perfection when the hive was placed before the public; but from my own experience with the hive, the supports to the frames and compression by thumbscrews are capable of much improvement, and will be subject to it in the near future.

I learned that, from these causes, and not from the system itself, the doctor was about to change to the regular L. hive.

The doctor's honey-house was a very substantial stone building. My photo of the interior was necessarily cramped, and I have allowed the artist to touch out the cramped portions to show more clearly how the extracting was done.

as shown. When extracted, and the frames replaced, a number of supers are let down together.

The large window by the young man is covered with wire cloth, and there is a brilliant light for all operations.

There is not the least doubt but this drop from extractor to tank, from tank to bocooy, is most agreeable and effective. As to the elevation of all supers to the gallery, I believe I should prefer that as automatic as the other, and would plan with that end in view.

In an ante-room I found a box fully 6 ft. square. This could also be elevated by means of weights, cords, and pulleys. Empty combs could be piled up in proper racks; then sulphur was set on fire, and the tight box dropped over the burning brimstone, and there was a most effectual moth-eradication.

The young Cuban in attendance told Mr. S. that one day, after the sulphur fumes

had been started, the rope broke and down came the box, almost catching him under it and eradicating him.

I was pleased to find all of these novel devices, for it shows the doctor to be much of an inventor, and resourceful. He has another apiary of about 200 colonies within a few miles of Artemisa, and near to Mr. Hochstein.

The doctor's helpers were very hospitable; and when we left they proffered us milk and coffee, and we parted from them with "muchas gracias" and the proper number of adios.

In Guines valley we found a few Americans doing a prosperous business at winter gardening. Their tomatoes and egg-plants were shipped to the States. W. W. stopped to interview every one of them. None of these parties was up to bees, and I doubt if the business would have been profitable in their locations; for on this trip we found places where appearances were against honey production. But W. W. had a very hopeful view of matters; and after we struck the smooth calzada we fell to discussing, or W. W. did, or, rather, gave a series of lectures upon almost every known topic, from the descent of Darwin to the ascent of Santos Dumont. He had just changed off from the planet Mars as a honey country to the probable fate of the Sphinx of Egypt, when he startled me with the energetic exclamation, "Why, hello, Rambler! here is an apiary.

How in time did we miss that when we came south?"

"Don't know, Bro. W. W., unless it was when we had that heated discussion about



THE FIERCE CUBAN BEE-KEEPER.

a flying-machine. That is a new apiary too; two or three hundred colonies; shall we stop and view it?"

"Of course, we will," said W. W. "I believe that apiary belongs to those aduana men in Havana—just what I wanted to find. Let's find out if they are getting much honey?"

"Why, yes," said I; "there is their top buggy under the shed. One or both of them must be here, sure."

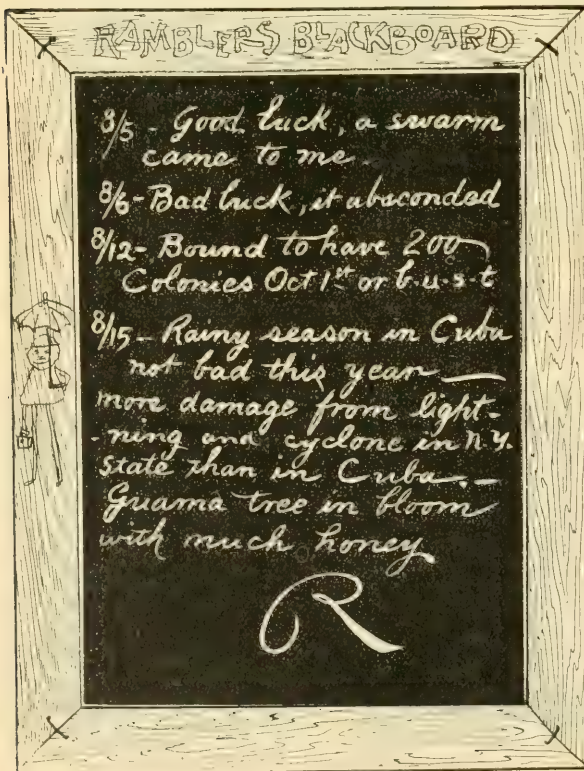
With happy—yes, almost joyful—anticipations we hastened to the cabin. Around it were piles of new bee-hives. W. W. shouted, and rattled a cover on an empty hive, and made noise enough to arouse the seven sleepers. We were anticipating the appearance of a person with a smile on his face, the glad hand extended, and a cordial welcome. Our faces were wreathed with our happiest smiles, when suddenly a stranger, a Cuban, came around the corner of the cabin. Well, you never saw smiles drop quicker. I really thought W. W.'s whole jaw was going to fall. That savage Cuban, with his ever ready machete, ordered us off the place.

"Noone allowed to look around. Vamos, Americanos; dogs and every thing."

"But can I take a photo?"

"Vamos, camera; vamos."

We did vamos; but I reflected that the savage Cuban did not own the whole country, and mounted the stone fence across the calzada and took a snap shot; but, owing to the strain on my nerves, the photo was N. G.



Of course, if the aduanas had been there all would have been different. But it is all right. The only harm done was the spoiling of such beautiful smiles as we had prepared.

As a friend (and Mr. S. joins me) I would advise Messrs. Aduana to put a less savage man at the head of that apiary. Suffice it to say, we learned nothing about the apiary and its productions, and we soon after dropped into Havana, sad and tired.



AN A B C SCHOLAR'S APIARY.

Inclosed you will find one of my kodak pictures of one of your A B C scholar's apiary in its third year, numbering 20 colonies. They are all in Danzenbaker hives but two, which are home-made.



GILPIN'S APIARY OF DANZENBAKER HIVES.

The queen I got of you last year is a dandy. Her bees gathered 128 lbs. of as nice white honey as you ever saw, up till July 15, and they have another super nearly filled.

H. G. GILPIN.

Winnebago, Minn.

A CRITICISM ON THE DANZENBAKER HIVE.

Mr. F. Danzenbaker:—I feel that I should write you a few lines in regard to your beehive. I have given it a very thorough trial this season, and have found it to be, for all purposes, the very best hive I have used;

and for the production of a fine grade of comb honey I have not the least idea that there is another hive in existence that will compare favorably with it, and I am fairly well posted in that line.

Last spring one of my colonies (which, at that time, were all in L. hives) had about a third of its combs built, being a late second swarm of the previous season; and, being short of queens, I removed the queen in order to have some cells started. In removing the cells I overlooked two of them, with the result that the colony cast a very weak swarm with a virgin queen. This swarm I hived on three frames of starters in a Danzenbaker hive. There were actually about three pints of bees.

This was just at the commencement of the clover flow, which was very poor here. Since that, and before the buckwheat flow, I have taken four full frames of sealed brood from that colony, so you can see that it could not have been strong.

I have taken 21 sections of A No. 1 in grade, from that colony, and it is just finishing a full super of 32 sections; in fact, they are all sealed except the outside row of cells.

I believe that, if I had not taken any brood from it, it would have finished 100

sections, as our buckwheat flow was the best we ever had.

There is only one thing against the Danzenbaker hive in this locality; namely, propolis. I am substituting OE for closed-end frames, and they are much better; but they do not give the satisfaction in other ways that the closed frames do, and I find it difficult to maintain an accurate bee-space between the frame and supporting-cleat.

There is one other feature which, however, can be easily remedied; that is, the heads of the rivets in the section-holders

should be countersunk, as they project so as to interfere with the sections.

F. X. SPANGLE.

Coalport, Pa., Sept. 7.

[Mr. Danzenbaker, who is with us just now, replies:]

Your kind report of success, and suggestions for the betterment of my hive, are alike encouraging and gratefully appreciated.

Bees instinctively seal with pitch-like propolis all cracks and corners to retain bee heat and exclude young wax-worms; otherwise they could not exist. Better for all concerned to help them reduce the need of it to the lowest limit.

The A. I. Root Co. is now using special machines, cutting both ends of stock at once, securing absolute accuracy in fixtures that will fit together like minted coins, so that closed-end frames properly nailed and keyed up will have no spaces to be glued, and the inconvenience of handling will be as nothing compared with their established advantages over open-end or loose frames, which I *never* use.

The rivet-heads are now made thinner, so that they are easily driven even with the surface, clear of the sections, by placing the end-bars on the end of a hard-wood block or heavy piece of iron with a hole for the rivet to pass through.—F. D.

THE EFFECT OF THE DROUTH IN TEXAS; THE AVAILABLE BEE LOCATIONS IN THE STATE.

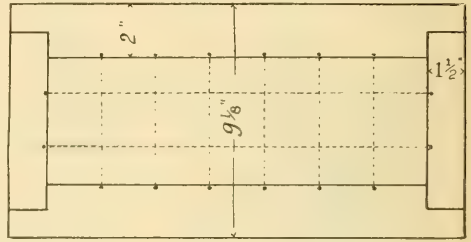
I visited Wharton, Beeville, Floresville, and Uvalde. I found the bees in good condition, and the bee-keepers doing well at all these places except at Uvalde. At the latter place they are suffering from a very severe drouth—so severe, in fact, that the present year's honey crop was practically a failure. At the present time many of the bees in that locality are dead, with a good chance for many more to die if rains do not come. There is no doubt that, in average seasons, that is a good honey country—the best, perhaps, that can be found in this country. However, there are plenty of other places in this State that are just as good, only they are not yet developed, and therefore are not known to the bee-keepers at large. That reminds me that, in case any one inquires of you regarding the honey resources of this State, with a view to locating here in the bee business, I shall be glad to correspond with them. By doing so I can prevent them from going into localities that are likely to be overstocked, and can, on the other hand, send them to fine localities that are as yet entirely unoccupied.

WILMON NEWELL,
Assistant Entomologist at the Agricultural
and Mechanical College.
College Station, Texas.

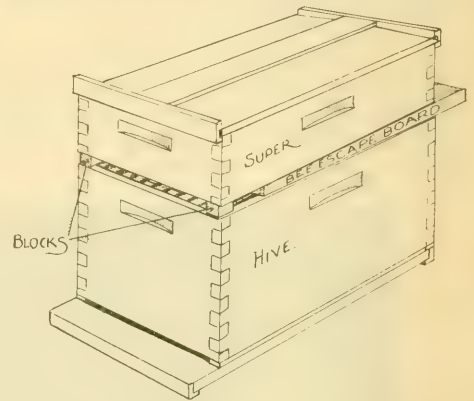
A COUPLE OF LITTLE KINKS.

To those who have very much transferring to do, the following is a very handy

article. The frame is made of wood, and joined as above, and then strung with chalk-line. To transfer from a Hoffman to



a Danzenbaker frame, place the former with comb on the frame, and then use an empty Danzenbaker frame as a model to cut by. The drip passes down between the cords, which is generally a great nuisance.



The next affair, which I consider a great improvement over the old way, is merely two blocks of wood a trifle thicker than a bee-escape board, to be placed in front of and between the super and brood-chamber, when the escape-board can be slid in from the rear without raising the super 45°, as is the rule, thereby decreasing the danger from bee-stings, also the uncapping of the honey.

CHAS. E. SELCHOW.

Port Chester, N. Y.

[Your method of inserting the bee-escape board involves considerable work. The lifting-up of one end of the super, inserting the blocks, then lifting up the other end, all takes time. The general plan is to lift the super up at one end, tilting it so it will stand at an angle of 45 degrees to the brood-chamber, when the bee-escape can be set in place, the super let down on the bee-escape, and the whole aligned into position. It is not necessary to lift the whole super, as you will see, by this plan.—Ed.]

WHAT TO DO WITH BITTER HONEY IN SECTIONS.

I have twenty supers filled with the Ideal sections, and they are all sealed over full with the bitterweed honey, which is of no

use except feeding, and I shall not need that, for all of the colonies have about thirty to forty pounds each for winter, which is much more than is necessary in this section. I have an idea of leaving it on the hives, and just about the time they begin bringing in pollen next spring I intend taking the supers off and letting the bees clean out the sections by the slow-robbing plan. Would it not be better to uncap the honey, or, still better, extract it? After they have cleaned up the combs, and new honey is coming in, I will put the supers with the drawn combs back on the hives, and the bees can fill them rapidly with the new honey. Would you leave the supers on the hives, or take them off? I am sure that I can keep them on the hives; but if I take them off now I shall have to do something to keep out the wax-worms. Wintering here is no problem, as there is never ten days that the bees can not fly.

Hazlehurst, Miss. J. S. WISE.

[I would take the honey off now. If left on the hives the bees might, later on, take it down in the brood-nest, but during the time they would soil and discolor the sections.

If the honey is bitter, and unfit for winter food, I would feed it out by the slow-robbing process as directed in the A B C of Bee Culture, next spring. It is not necessary to uncap the combs, for the bees can do it cheaper than you can. In your locality the bitter honey would do no harm, probably, if fed out by the slow-robbing process at any time.

Stack the supers off to one side of the yard, and make an entrance so narrow that only one bee can get in at a time—ED.]

THE ORTON TENEMENT HIVE IN THE A B C.

You will do me a great favor by answering the following questions:

Is Orton's tenement hive double-walled itself, and packed between?

When this hive is used, are bees left in all summer? If they are, why could they not be taken out during summer?

If it is not double-walled and packed, is there any packing material used between the hives?

I use your eight-frame Dovetailed hive.
Callaway, Va. B. L. FISHER.

[The Orton tenement hive, as described in the A B C, is packed between the walls. The kind of packing is not very material, provided it is loose and porous. Planer shavings, wheat or oat chaff, forest leaves, dry straw, any and all of them will do very well.

Yes, the bees are left on the hive all summer, though they may be taken out if preferred. In the case of all tenement hives, there is no packing material used between the several brood-nests. Very often a cluster of one colony will be close up to the separating wall on the tenement side of which there is another cluster, and

the combined heat of the two serves materially to keep up the warmth of the cluster.—ED.]

BRUSHED SWARMS; MORE QUESTIONS CONCERNING.

I am much interested in your article on "Brushed or Shook Swarms" (page 640). Will you kindly answer the following questions?

1. What do you do with the hive the bees come from?

2. Do you give it a new queen? or, after the bees are all hatched, shake them in front of the other?

3. What month would you do this in Massachusetts?

4. Do you make the Danz. hive with self-spacing frames?

There are some of us who would like to try them, but we do not want closed-end frames.

I have asked two of your supply men, and they claim that the Danz. hive has only closed-end frames.

Ayer, Mass., Aug. 11. F. P. BRIGGS.

[1. The hives from which the bees come can be placed alongside of the new hive if the old stands are put in a new location.

2. The old hive may be given a laying queen, or it may be allowed to raise a queen of its own from a cell.

3. The time to make brushed swarms will all depend on the time when the honey begins to come in. No definite time on the calendar could be assigned, as the seasons vary so from year to year; but when the honey-flow commences, then the swarms should be brushed.

4. We make the Danzenbaker hives with self-spacing frames to accommodate a certain class of customers who do not like the closed-end frames.—ED.]

SWEET CLOVER IN THE SOUTH, AND ITS YIELD PER COLONY.

I can report the best crop for several years. My bees averaged a little over 100 pounds per colony, and a good many of them went 150, and some of them nearly 200, all extracted. The bees had practically no attention at all except to clean off the honey-boards in the spring and rob them twice. The crop could easily have been made to average 150 pounds, and I dare say such men as Miller, Doolittle, and Coggs shall would have got an average of 200 pounds. The principal part of our crop here is from sweet clover.

J. M. CUTTS.

Montgomery, Ala., Aug. 25.

A PLAN TO GET BEES UP INTO THE SUPERS.

As I see some are having the same difficulty in getting bees to go up into the supers that I had, I will tell you my experience. I put two or three sections of honey in the super, and the lower part of the hive; the combs were not all filled in the bottom

with honey and young bees, and the bees took the honey from the super and carried it down and filled the bottom full; then I took the two outside combs that were full of honey, and put them inside near the center of the hive, and moved the combs with brood outside (do not do it in cool weather), and the bees took the honey out of those combs and carried it up into the super and went to building new comb in the super.

C. K. CARTER.

Eagle Grove, Ia., Aug. 24.

TROUBLE FROM LETTING BEES CLEAN OUT EXTRACTING-FRAMES.

Is it best to let the bees clean out the extracting-frames after extracting, before putting them back on the hive? When I put them back on the hive the ground will be thickly strewn with dead bees in a short time, and they keep up the fight for two or three days thereafter. Would it be best to let the bees clean out the frames after extracting, before putting them away for the winter? Also would it be best to let the bees take out the honey from the sections or comb honey that was not capped or sealed before putting it away for winter?

Some time in June I noticed the bees bringing out young bees. They were white, but had wings, and I suppose they were almost ready to hatch. What was the matter?

MISS M. J. EDWARDS.

Hopeside, Va., Aug. 12.

[Letting the bees clean out or lick dry the combs that have just been extracted sometimes leads to wholesale robbing. While expert bee-keepers can manage to let the bees do the cleaning without much trouble, a beginner will sometimes start a fearful row among the bees. As a general thing the combs just extracted should be put back into the hive from which they came, or some other hive needing extracting-combs. No robbing will result from such procedure, unless it be after the honey season or unless, too, the entrance was too large and the colony weak. With an ordinary entrance a strong colony ought to take care of two or three sets of extracting-combs without any robbing at any season of the year.]

Another plan that has been used with very good results is to pile the extracted combs up on a bottom-board, five or six supers one upon another, with a tighter-fitting cover over all. At the bottom of this pile of combs there should be a very small entrance, large enough to let in only one bee at a time. This permits of a species of "slow robbing" by which the bees are allowed to clean out the combs without creating much disturbance.

Sections partly filled can be cleaned out from supers stacked one above the other from a small entrance. Sometimes the bees will carry the honey below when it is put on an upper story.

Where the bees carry out young brood that is white it may indicate the presence of moth-worms. It may indicate that there

has been robbing in that hive at some previous time, or it may show that the brood has been chilled or overheated at some previous time.—ED.]

WINTERING IN DANZENBAKER HIVES.

Please inform me how to winter bees in a Danzenbaker hive, the brood-chamber being so shallow it seems as though the bees would not stand the cold weather we are liable to have in winter. Also please state how to get the worms out of a colony of bees, and if there is a way of keeping them out.

CHAS. H. WOLFE.

Pike's Creek, Pa., Aug. 25.

[We have special winter cases that can be used over Danzenbaker hives if it is desired to winter on summer stands.]

If you have a good dry cellar that can be darkened, we would advise you to winter indoors in the cellar; but be sure to leave a good wide entrance.

Shallow brood-chambers will winter all right providing they are properly protected, either in or out doors.

You can get rid of worms easily by introducing an Italian queen into the hive. Where there is an admixture of Italian blood, worms will not make much headway.—ED.]

A CORRECTION FOR THE A B C OF BEE CULTURE.

In your A B C book, page 97, under the subject of feeding back to fill out unfinished sections, you advise diluting honey by adding *ten* parts of water to *one* of honey. Is this correct? It is very thin, and would take a long time to get any in.

N. O. WALKER.

Franklin, Tenn., Aug. 26.

[The item to which you refer is a typographical error. It should read "two parts of water to one of honey," and I am surprised that no one has noticed the mistake before this. I had not noticed it before, and regret that the item has gone out in the new edition of the A B C now on the press. It is a silly and senseless blunder.—ED.]

BETTING ON A LOSING GAME.

Please give me a little information. Sunday I made a bet that a quart of honey weighs 3 lbs.; but the doctor said it did not; so we took a standard quart measure, and it weighed 2 lbs. and 15 oz. In the A B C book it said 3 lbs. R. PFLUEGER.

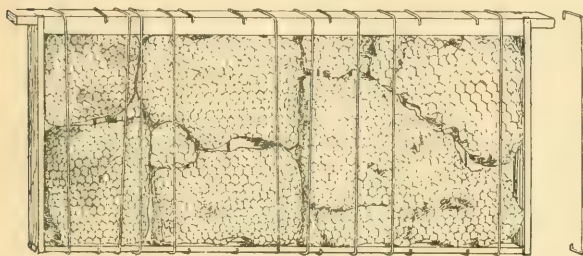
St. Louis, Mo., Aug. 10.

[I do not believe in the policy of betting. It is a losing game sooner or later, and especially do we discountenance *Sunday* betting. In answer to your implied question, I can only say that the specific gravity of honey varies considerably. It may run as low as 10 lbs. to the gallon, or as high as 12 or 13; but the general average is about 11 lbs., and this would make a quart run 2 lbs. 12 oz. I would no more think of betting on the weight of honey than on

which way the wind would blow to-morrow.—ED.]

A METHOD OF STAVING TRANSFERRED COMBS.

I send you a cut of my wire hooks used for holding combs in frames. Last year when transferring some bees from boxes to frame hives, I used these hooks and found them all right. The wire of which these hooks are made is about the size of a knitting-needle, and came from bales of hay. They can be made very fast with a pair of cutting-pliers.



In using the hooks, adjust as many as you wish to one side of the frame by first hooking over the bottom-bar and then the top. Fit in your comb, and use as many hooks on the other side as are necessary to hold the comb in place. When whole combs are used, from four to six hooks are sufficient, but when pieces and crooked combs are put in, of course more hooks are required.

After the bees have fastened the combs, the hooks can easily be removed without taking out the frames, by simply unhooking from the top-bar and pushing down till the bottom hook is free from the bar.

Trough, S. C.

T. LIPSCOMB.

[Your method of staying up the combs is very good; but nowadays we do not consider it advisable, since the advent of foundation, to try to use up pieces or scraps of comb. In modern practice it is the rule to transfer only such combs as are perfect and all *worker*, and will fill the frame without piecing out. The difficulty with small pieces in one frame is that drone-cells will be built along the line of union.—ED.]

THE CAUSE OF PEAR-BLIGHT; SOME VARIETIES IMMUNE TO IT; THE OPINION OF AN EXTENSIVE FRUIT-GROWER.

I have been thinking of adding my opinion on a few points brought up in GLEANINGS. In the first place I have an orchard of 1800 fruit-trees, just coming in bearing, of which 900 are pear-trees. I have 13 colonies of bees, and am on a deal for 16 more. Italians, at \$2.50 per colony, in ten-frame L. hives, so you see they are not paying their present owner. Now, we have had a very wet season, and, only for a dry winter and spring, crops could not have been

planted. Nearly all pear-trees near here on black soil are badly blighted. My pear-orchard is on high clay land; and, although some trees were white with blossoms, I have no blight whatever. I have only such varieties as are not subject to blight—Keiffer, Garber, Duchess; and now to have good fruit of any kind we must have bees or some insects to mix pollen. Take away bees and other insects, and we should have practically no good fruit. Major Holsinger, of Kansas, has Kieffer and Leconte pear-trees, planted 15 years, side by side. Bees have hummed from one tree to the other.

Result—Leconte trees are all dead from blight; Keiffers are sound, and bearing heavily every year. Now, if men will plant the right varieties on suitable land they need not worry about trees or blight. Too rich soil will cause blight to any variety; but some varieties are more proof against it than others. A few years ago, golden or yellow bees were the craze. It is a wonder some fruit-growers did not accuse them of giving the peach-trees the peach-yellows; and now here comes the July 15th issue of GLEANINGS. Looking over it I see Dr. Miller has fed 1000 lbs. of sugar, and Dr. Gandy is rolling in honey. Well, all doctors are not alike; but I think it is the duty of our editor to investigate.

J. E. JOHNSON.

Williamsfield, Ill., July 25.

THE STING-TROWEL CONTROVERSY.

Dr. Miller tells an apocryphal and absurd story as an answer to Stenog's question about bees injecting poison in a cell of honey just before sealing it over, June 1, 1902. With a wonderful accuracy of memory he quotes what I said years ago, and says that, when he remonstrated with me privately, as if I had been doing something criminal, I said I saw the bees working at the cells, and what else could they be doing? If Dr. Miller remembers correctly, he said, Cheshire says the formic acid gets into the honey through the blood of the bee. Well, Cheshire says nothing so absurd, as that in the whole two volumes of his books. What he does say, and what I am willing to accept as the opinion of a scientist on the subject, is as follows: Vol. II., page 587: "Herr K. Mullenhoff* and the Rev. W. F. Clarke have pointed out that formic acid is provided by the bees by depositing droplets from their stings, which they touch on the face of the honey; Herr K. Mullenhoff adding that thus the presence of formic acid, absent in nectar, is accounted for."

W. F. CLARKE.

[This was submitted to Dr. Miller, who replies:]

Mr. Clarke is quite right as to what Cheshire says, the trouble being that I did *not*

* Archiv fuer Anatomie Physiologie, 1886, p. 326.

"remember correctly" my authority, and I can not now recall who it was. Mr. Clarke takes more seriously the word "remonstrate" than its use in this locality will warrant. I did not think of his doing any thing criminal, but foolish and unwarranted. Will Mr. Clarke give us the least proof for his sting-trowel theory? If every cell of honey has a sting applied to its surface before being sealed, surely of the thousands of cells constantly being so treated some one at some time ought to have seen the sting so applied. Mr. Clarke does not say that he ever saw it. No one else has seen it. If the sting is used as a trowel in working wax, it ought not to be a difficult thing to see at least one bee thus using its sting. Bees can be seen working wax with their jaws; but no one has ever reported the sight of a bee working wax with its sting. The sting-trowel theory is a matter of Mr. Clarke's imagination, pure and simple, his silence as the only reply to a challenge for proof made many years ago being the best proof thereof. Still further proof of the unsubstantial character of the theory will be afforded by the utter silence that will be the only response to the present challenge for proof that the sting is ever used to work wax or to poison honey.

CLOTH BACKING FOR FOUNDATION.

In my work this season I have been led to wonder if strips of cheese-cloth or some other very thin fabric given a thin coating of wax, and passed between the rollers, would not be about right for brood foundation. It could not sag, and one wire at the bottom would be sufficient to make a very strong comb. It could be produced in continuous sheets, trimmed by machinery in process of manufacture, and rolled up on large spools with a long ribbon of paper between, or cut out and packed like ordinary foundation.

D. B. THOMAS.

Odin, Mo.

[Such a thing as you describe is very nice in theory, but poor in practice. A. I. Root, many years ago, exploited this matter very thoroughly. He tried paper and cheese-cloth; but any thing of a fibrous nature the bees would gnaw sooner or later. They would build it out into beautiful comb, and, apparently, cloth-stayed foundation was a great success; but after the honey-flow, and sometimes even before, a bee might get hold of a stray thread or fiber. It would then dig and pull, and then other bees would get hold, and keep on digging and chewing and pulling until the whole comb was ruined. The only satisfactory stay for foundation is fine wire unless it be splints, as Dr. Miller described about a year ago.—Ed.]

DOOLITTLE'S QUEEN-REARING METHODS INDORSED.

I was much pleased to read both your own and Dr. Miller's system of queen-rearing. It is the height of folly for even

such men as Dr. Gallup and Mr. Alley to attack a method so long and favorably known, and so thoroughly tested by many men in many localities. C. S. HARRIS.

Holly Hill, Fla., Aug. 25.

FROM 6 TO 12, AND \$75 WORTH OF HONEY.

This spring I had 6 swarms; now I have 12, and about \$75 of honey, although no one else around here has anywhere near come up to that. Every one says, "Poor season—too wet;" but I think if they would care for their bees as I do they would complain less. I have sold some honey for 15 and 16 cents. My bees never did better than this year; 500 lbs. is comb honey.

F. W. JUDSON.

Syracuse, N. Y., Sept. 8.

THE DANZENBAKER HIVE IN NEW YORK.

I think I can safely say I can produce more and better-appearing box honey with the Danzenbaker hive than with any other I have used. Out of six such hives I have secured over 200 lbs., and supers on four of them still.

H. F. PARKER.

Fishkill, N. Y., Sept. 8.

THE OLD GERMAN BEE-KEEPER'S COMPLAINT.

BY J. O. SHEARMAN.

Ve used to haf box hives galore,
All standing in a row
Upon a plank or other bench—
I haf' to told you so.

I used to climb up on a tree
To get my swarm of bees;
But now I cut 'em off der wing
So dey comes back to me.

But now ve haf new-fangled tings,
And don't let dot bees shirk
Dere duty! for ve soon transferr'd
And sot dem bees to vork.

And now ve haf' so much to do
Ve're always on the go;
Ve haf' to hump to keep it up—
I haf' to told you so.

My leetle gal vas mighty nice
Ven she vas very schmall.
She vants to vork shust like der bees,
And tries to do it all.

She put up sections, crated sweets,
Und many little tings
She did, while she's a leetle gal.
But now her time takes wings.

She has some very pretty close—
Is always on the go;
Und vears a feather in her hat,
Und plays der pi-an-o.

I haf to tinks sometimes for her,
She's not so much to do;
But vorks so much like old box hives,
Und ought to be transfer.

Ve used to hear of Katy Grimm;
Und vonders she cold do;
Her father too—ve heard of him—
He vas a vorker too.

But our folks don't care much apout
Der humble honey-bee,
Nor jobs to do. Dey likes der pay;
Und dot is all dey see.

They hardly know imported queens
From burly bumble-bees;
If they could only kill 'em all
They'd wallow to their knees.



For the wages of sin is death; but the gift of God is eternal life through Jesus Christ our Lord.—ROM. 6:23.

At the close of Mr. Reed's work (mentioned in our last issue) he gave a sermon on the text above. He applied the text principally to spiritual death. He said the world is full of dead people who are still going about; but they are dead to God's claims. He said there were dead people in that neighborhood, and he feared there might be dead people in that audience who were listening to his voice. Wealthy people especially—our millionaires for instance—are most likely to be spiritually dead. It seems sad to think that those who have most to thank God for should not only forget him but ignore him, and laugh in sarcasm and irony when any thing is said about their responsibility to the God who made them. In order to illustrate this spiritual death, Mr. Reed spoke something as follows:

We will take a young man for illustration who starts out in the business world. We will suppose this young man has been brought up here in Bingham by Christian parents. He has gone to the Bingham Sunday-school here in this little church, and learned to love his Bible. He is going off to some great city—we will say Chicago. As he goes to take the train his father and mother go with him. With tears and prayers the good mother puts the little Bible into his hands, and he gives her his promise to read it every day. This promise is kept for a time. Every thing is new and strange to him. He does not know anybody, and nobody seems to care for him. He spends a great deal of his spare time in his own room, and reads his little Bible every day as he promised, and commences to grow in spiritual life. Finally he becomes a little acquainted with the boys in the shop or store, and they begin to notice him. At first he is a victim to their jokes, and he begins to fear them, naturally looking up to them as being a little more experienced, and feeling willing to learn of them something of the ways of business, and, if you choose, the ways of the world. By and by some of them invite him to go along with them and see something of the big city. It is not long before he is invited to have something to drink with the rest. He begins to say *no*; in fact, he *does* say *no*, but it is rather feeble. And here is the first great danger—the turning-point. Bro. Reed said, "Oh I wish I could say *no* just once for that boy who came from Bingham! An emphatic decisive *no* would settle the question for all time to come." The boys laugh at him, and begin to banter him. They know from past experience what his "no" means. One of them gets hold of

him, then another gets hold of his arm on the other side, and pretty soon he drinks just a little to keep up appearances. But he goes back and keeps his promise to his mother, reading his Bible that night. By and by somebody invites him to go to the theater. Now, mind you, dear reader, Bro. Reed and I are not considering the question of theaters as a whole just now. There may be wide differences of opinion in regard to theater-going; but this boy from Bingham has no business going to a theater; he can not afford it; and even if the other boys do promise to pay for his ticket, it makes no difference; in fact, it makes it *worse*, because he then comes under obligations to them. With his small pay, and the sacrifice the good father and mother at home are making for him, he has no money to spare. Another thing, with his bringing-up going to a theater would be a letting-down of his principles. His mother would not approve of it, even if it did not cost money. I need not follow all the details. You know how it is yourself. Pretty soon the boy is smoking a cigar. At first he objects and holds back. He has no money for such things. Besides, he does not like the smell or taste of tobacco; but he is in Satan's training-school. It all goes along by steps—little steps, and easy steps. He still continues to read the Bible, for he is a boy of his word—at least he is as yet. But these Bible-promises that used to be so full of meaning, and so precious to him, are beginning to be dead and dull. He reads the words mechanically, but they have no meaning. The life has *gone out* of those sacred pages. It is getting to be a *dead* book; and the time finally comes when he shuts it up for good. He remembers his mother, but he throws his head back and says to himself, "Oh! mother is all right enough, from *her* standpoint; but she does not know any thing about this great busy world of ours. She's a back number. As for me, my brain has grown somewhat since I left that little home in Bingham." Poor fellow! it is his *stomach* that has grown, rather than his brain. As he closes the old book for the last time the last spark of life has departed. He is spiritually dead.

The merchants and the manufacturers of the great cities are continually sending out into the country and into the little towns to get boys that are not contaminated by the iniquity of the great cities. These uncontaminated boys are worth their weight in gold—that is, if they hold on to the principles they received in their humble homes. But when they get to the point that that boy from Bingham reached, they are not only dead to God's appeals, but their employers, sooner or later, discover that, so far as valuable business ability is concerned, they are like the rest of the great city. They are dead to any prospect of promotion or trust.

And now, dear friends, let us go back to that paper I held in my hands. I had a little talk at the close of that last sermon.

On that paper were 40 names—to be exact there were just 43; but my two grandchildren, Mildred and Howard, were a part of the 43. Mildred is 7, and Howard is 10; but they took in all of Mr. Reed's exceedingly plain sermon, and without a bit of hesitation they wrote their names in their own childish handwriting. Mr. Reed said it brought back very vividly the time when, almost 30 years ago, Mildred's mother looked up into his face and listened to his preaching, and gave her childish heart to the Lord Jesus Christ. Yes, there were several other children, many of them under ten years of age, that signed that paper. Of course, the objection was raised that they were too young; but, dear me! what are the fathers and mothers thinking of when they make objections instead of giving encouragement at a time like this? What can they be thinking of when they suggest that a child who is old enough to hear a minister's sermon, and follow it through from beginning to end, is not old enough to choose between righteousness and iniquity? The Master himself said, "Suffer little children to come unto me, and forbid them not." Perhaps not every minister is able to make his sermons so plain and child-like and simple that a child only ten years old is not only able but delights to follow the sermon through. The heading of this paper is, as nearly as I can remember, something like this: "I accept Jesus Christ as my Savior and my guide through life; and I promise to do as he would have me do, so far as I am able." You will notice it includes the sentiment of that wonderful book, "In His Steps," "what would Jesus do?" The minister of that church, in looking at the list, and reading the heading, said, "Why, that is as good a creed as I would ask for. Anybody who signs that paper can be taken into the church without any other conditions." Now, I did not expect all who signed that paper would unite with the church; but I did expect a considerable number to do so. Permit me to explain that this church is made up of people of all denominations; and even when all of these denominations united there has been difficulty in raising the money to pay the minister's \$60 a year for preaching once every other Sunday. For a time all of these various denominations seemed to unite very well; but just at present a great many of the older Christians think they must have their old denominations or none. Mr. Reed said I was exactly right in deciding that the only way to keep up the church under the circumstances was to have them all unite—Baptists, Methodists, Congregationalists, Presbyterians, Episcopalians, Disciples, United Brethren, and very likely there may be members of some other churches. The thing to do at this present age under such circumstances is to drop all differences, and band together as followers of Jesus Christ. Somebody, however, seems to have started the idea in that community that there is no particular need of uniting

with *any* church; but I am sure this is a grave and grievous mistake. If that boy from Bingham we have just been talking about had, when he first entered that great city, gone to Sunday-school, and taken a letter to the church, and kept with Christian people, he might have been now a great and good man, instead of being without a character, penniless, and dead to every thing that is good.

I have often watched the result of people trying to lead a Christian life without uniting with any church. Years ago, on these pages, I told you of a family in Michigan. The father and mother were both earnest workers in the United Brethren Church. They bought a farm in the northern part of Michigan. Within a quarter of a mile of them there was a Methodist church where services were held every Sunday; but they felt as if they could not unite with any denomination not their own, and there was no place of worship like their own nearer than about fifteen miles. This was so far they went only a few times. Finally they ceased going at all; and their children, as they grew up, did not even go to the Methodist Sunday-school, only a quarter of a mile away. At the time of my visit there was a family of six or seven. Out under the apple-trees was a platform covered with the boughs of trees. My eyes had wandered toward that platform several times, and I felt troubled about it. When I was told they had not been to Sunday-school, and that the family had grown up without any religious teaching, the mother spoke out something like this:

"Mr. Root, that platform or pavilion, as they call it, was built to hold dances. I have protested against it ever since it was started. Our children, instead of being brought up in the Sunday-school, are so taken up with dancing-parties that there is no room in their hearts for any thing else;" and she burst into tears as she declared then and there that she for one was going over to the Methodist church and strive to undo the outcome of their living for years without any recognition of the claims that God has upon us all. Yes, men and women may lead Christian lives without being members of *any* church, but past experience is all against it. United, we stand; divided, we fall. With the allurements that this great world is now offering to lead all mankind astray we should leave no means untried for avoiding its dangers. It is exceedingly desirable that those who have signed that paper I have mentioned should keep the matter in mind. They have commenced to lead new lives, and every safeguard should be thrown around them. The fact that people know they have signed the paper will be a safeguard for some little time; but pretty soon the matter will be forgotten. If it is understood from the start that a man is a *member of the church*, everybody will expect him to be honest in deal and upright in deed. In fact, he will expect it of himself in a way he would not

were he not a member of the church.* But after uniting with the church, he should be regular in attendance. If he is not, this bracing-up soon becomes of no avail. And right here comes in the value of communion services. When I first united with the church, I am ashamed to say I could not see any need of it. I thought it bordered on superstitious rites. May God forgive me. The communion is a renewal of vows first made to strive to follow Christ Jesus. Being absent from communion when it is possible to go is another indication of the loss of spirituality. The man who is living near to Christ, and desires to be near to him, will be glad of the opportunity of being present at communion. He will rejoice at the chances it gives him of renewing his resolve to seek righteousness and forsake iniquity. I told you that not one of the forty had come forward and united with the little church over there among the hills; but I did *not* say, dear friends, I had given up—God forbid. I am hoping, praying, and believing that these friends, young and old, all will by persistent effort on our part (the Holy Spirit assisting us) become members of that little church. Nehemiah succeeded in building the wall, notwithstanding the laughs and jeers of those who “grieved exceedingly” when they saw the worship of God was to be established again in that land, and notwithstanding their efforts to tear down as fast as the Jews builded it. Almost alone when he started, and almost unaided, he persevered and held on, and God was pleased to notice his zeal and answer his prayers.

Now, if this Home paper shall be the means of stirring up within you an enthusiasm to build up God’s kingdom in your neighborhood, and induce you to start out to gather in “the *lost* sheep of the house of Israel,” then will my heart rejoice.

* In visiting the families in and around Bingham, Mr. Reed and I found a few who claimed that the former members of that little church were not as straight and square in their deal, and did not pay their honest debts any better than, if as well, as those who made no profession at all. Their excuse for not coming to church, and for not accepting Christ Jesus was that Christians are not as fair to deal with, and as unselfish for neighbors, as the professed infidels. Well, if these church-members commenced right away, after they united with the church, staying away from services, and avoiding communion Sunday, I can understand how this thing might be true. The man who has cheated one of his neighbors, especially if he himself is a brother in the church, will not feel much inclination to go to meeting; and especially will he be likely to get up some excuse for being absent on communion day; and pretty soon he is a dead man, like the boy we talked about, even though he goes around and does business. But the man who is on hand at all the services held in his church, who delights in being at communion, and is ready to assist, such a man will rejoice at the opportunity of showing to his neighbors and to everybody else that he practices what he professes. Oh what a pleasure it is to meet such men, to have deal with them, and see them exhibit not only in every act of life, but in their smiling faces, that they from the bottom of their hearts believe and rejoice in that grand little text from the patriarch Abraham, “We be brethren;” and do try every day of their lives to love their neighbors as themselves!



THE BEES NEAR THE “CABIN IN THE WOODS.”

This is quite a buckwheat region, and just now I enjoy seeing, every morning, the bees come tumbling in front of their hives so heavily laden they can hardly fly. Yesterday morning, Aug. 25, they were working so heavily I called all the inmates of the cabin (Mrs. Calvert and her two children, Mildred and Howard; Miss Carrie and Mrs. Root), and the bees were so busy the family all stood around the entrance of the hive, on the side, to be out of the way of the stream of flying bees, and enjoyed for quite a time the sight of the rushing workers going in and out. An hour later I was at first puzzled to see heavily laden bees piled over the entrance, and going in like a swarm just being hived, until I noticed a dark cloud coming up, indicating rain. It didn’t rain, however, for bees often make mistakes just as we do; but one curious thing about the performance was that many bees were pushing out while these were trying to get in. I finally decided that all the bees in the field, pretty well loaded up, came to the hive at the prospect of rain, dropped their honey, and then, as the rain hadn’t come, they went back to work. You see a heavily laden bee can not take the chance of a wetting as well as one that has no load to carry. Am I right in this?

Buckwheat is grown very extensively all around here, but I understand the common variety is generally preferred. It is used a good deal to feed poultry, as the price is usually below that of other grain. It often sells as low as 40 cts. a bushel, and sometimes even as low as 30. In the afternoon I found the bees quite busy on wild buckwheat, a sort of vine that is quite a pest in cornfields. Our bees are now filling sections quite rapidly with buckwheat honey. We have honey enough all the time, so far, so we have never had a bit of robbing in our apiary of only two hives.

Our two hives are in a thicket of underbrush; and at the further side, opposite the bicycle-path, is an old rotten log, just right for a seat, and here I sit and rest, and watch and study the bees with almost as much enjoyment as I did thirty years ago. Close by the path is a maple-tree with a cavity in one side that contains rotten wood, *always* dry, just right for the smoker, and it will always light instantly with a match; in fact, the *smallest* spark will catch and spread. Willow-herb, or purple fireweed, is quite plentiful about here, and I suspect they get honey from this that is mixed with with the buckwheat, as the latter is lighter in color and milder in flavor than the buckwheat honey I have seen heretofore.

Aug. 29. — The bees were slipping so

much on the painted sloping bottom-board, that I tacked burlap over it, and now they march in in procession with their loads all right. This slipping is mostly when the painted surface is wet with dew. This colony that is working so strong is a "shook" or brushed swarm. I shook and brushed off only about half of the combs in the new hive on the old stand, giving them only two combs of brood and a queen; but it made them stronger than the parent hive, and they worked from the first with all the vigor of a new natural swarm.

CATNIP—HOW TO GROW IT FOR BEES.

Dr. Gandy's success with catnip for artificial parturage is attracting much attention. A great many want to know how to get a field of catnip, larger or smaller. Now, catnip is a weed, very hardy, and very easy to grow; but to get it in bloom quickly, and especially on a limited area, I would recommend sowing the seed, and transplanting, just as we do lettuce. In this way it can be put in after some other crop, and will furnish bloom very much sooner than if you sow the seed where it is to stand. I would suggest putting the plants about as far apart as corn, and cultivating both ways if you want to make them boom. Of course, this means work. Where land is cheap, and it is desirable to put in several acres, I would suggest plowing, harrowing, and broadcasting the seed. Ernest will probably be able to tell us something about how they manage in Dr. Gandy's neighborhood. Growing catnip for honey is not at all new. Years ago a Mr. Nevins, in the southern part of Ohio, grew fields of it so as to put catnip honey on the market. It is said to be light in color, of very fine quality, and that it will command as good a price as any in the market. We should like to hear from those who have had experience in growing catnip for bees. My impression is, however, that it will hardly pay to grow crops of it on good land for honey alone. Just now there is going to be quite a demand for seed; and very likely the seed and honey both, may pay for the expense of cultivation.

THE WILD-GOOSE PLUM; MORE ABOUT IT.

In the August issue of GLEANINGS I note your comment on your friend Hilbert's plum-orchard as being of no value. No wonder, this being a solid block of but one variety; and that the wild goose, the flowers of which are sterile, and need another variety flowering at the same time to fertilize it. For those 100 trees of wild goose, about a dozen trees of Robinson or Wootton will be sufficient to fertilize all, if planted in such a manner that their pollen can reach or can be carried to all the surrounding wild-goose trees. Both the varieties mentioned are heavy bearers, especially Robinson, which is very likely to overbear, and must be thinned, otherwise the fruit will be small.

My wild-goose plums were just as you describe Mr. Hilbert's—"no good," except one tree, by mistake planted among the varieties mentioned. This puzzled me, and I inquired into the cause of it, and the result is an unusual heavy crop of fine wild-goose plums on those formerly "no-good" trees. I suppose any Northern nursery can furnish Mr. Hilbert the Robinson and Wootton plum-trees, so there will be no need to send for them down South. J. R. JASEK.

Novohrad, Texas, Aug. 11.

MORE ABOUT OUR WILD-GOOSE PLUM FROM OUR OHIO AGRICULTURAL EXPERIMENT STATION.

Mr. A. I. Root:—I note what you say in August 1st GLEANINGS regarding Mr. Hilbert's wild-goose plums not bearing. You ask if it has proved "no good" in other localities. I will say in reply to this that, while the wild goose is not a first-class variety as to quality, it is a prolific bearer. It is one of those sorts, however, that will not bear fruit when planted alone. Its blossoms are what we call "self-sterile;" that is, the pollen from some other variety is needed to fertilize the blossoms of the wild goose. When some other native sort, which blossoms at about the same time, is planted near the wild goose, pollination will take place, either by the agency of the wind or by the bees—most likely the latter. Under such conditions the wild goose never fails to produce a crop. If this is the right explanation of Mr. Hilbert's trees not fruiting, I am quite sure that all he needs to do is to insert a few grafts here and there in the tops of his trees, of some native variety; and as soon as the grafts are old enough to blossom he will have plums in abundance. Or he might plant young trees of other varieties near by, but it would take a year or two longer for them to bloom than it would for the grafts.

Wooster, Ohio, Aug. 23.

W. J. GREEN,
Horticulturist.

Special Notices by A. I. Root.

WANTED.—Catnip seed.

WANTED.—SEVEN-TOP TURNIP SEED.

Let us know how much you have, and what you want for it.

WINTER OR EGYPTIAN ONION-SETS.

We have several bushels not yet disposed of. Remember you can plant them at any time in the fall, and get a crop; but the sooner you get them in the ground the better. For further particulars, see page 621, July 15. Quart, 10 cts.; peck, 50 cts.; bushel, \$1.50. If wanted by mail, add 10 cts. per quart for postage.

GRAND RAPIDS LETTUCE SEED, ETC.

Now is the time to sow your lettuce seed in the open air in order to get good strong hardened off plants to set under glass later. It is quite a saving of time and expense, to be able to get good stocky plants to move to the greenhouse, cold-frames, or hot-beds, to let them remain as long as possible in the open air. The Grand Rapids is still at the head for forcing under glass. We have a fine stock of new seed grown especially for our own trade, and do not believe the quality can be excelled by any stock or seed in the world. Ounce, 5 cts., 1 lb., 50 cts.; 5 lbs., \$2.00. If wanted by mail, add 10 cts. per lb. for packing and postage.

It is also time to sow Jersey Wakefield cabbage seed in the open ground to be put under cold-frames later. We have a fine stock of the same seed we have been selling, grown especially for us by H. A. March, of Fidaigo, Wash. Ounce, 20 cts.; 1 lb., \$2.50. If wanted by mail, 10 cts. per lb. extra.



REVISED ADVANCED PRICES.

In the August 1st issue, in this department we gave notice of an advance in prices. The cost of material and labor has advanced to such an extent during the past year that this advance in prices is made imperative. The revised table of prices, as they will be given in our new catalog, are given on the next page. These prices are in effect from Sept. 1st till further notice, and all previous prices not in conformity with these are cancelled.

The Jumbo and Little Daisy sizes of Corneil smokers are not yet ready, and will not be for some weeks yet; but we are getting ready to furnish these two sizes; and the standard size, as well as the Clark, will be improved. We have a number of other improvements which we will present in due time to our readers. We offer a discount of 6 per cent for cash orders before Oct. 1, which many will do well to take advantage of.

HIVES.

8-FRAME DOVETAILED HIVES.

| | Nled
P't'd | 1 | 5 | 10 | 25 |
|--|---------------|------|-------|-------|-------|
| Bottom board, 8-frame (A or B-8)..... | 30 | 10 | 90 | 1 70 | 4 00 |
| Cover-board, " (E, F, or G-8)..... | 40 | 30 | 1 25 | 2 40 | 5 50 |
| Empty body, "..... | 50 | 40 | 1 80 | 3 40 | 8 00 |
| Body with frames and division-board (5-8)..... | 90 | 70 | 3 10 | 5 80 | 13 50 |
| Body with frames, div'n-board, found'n-starters (6-8)..... | 1 00 | 75 | 3 35 | 6 30 | 14 75 |
| Shallow super, empty..... | 30 | 20 | 90 | 1 70 | 4 00 |
| Shallow super—section-holders and separators (2S-8)..... | 55 | 45 | 2 00 | 3 60 | 8 25 |
| Shallow super—section-holders, seps., sections (3S-8)..... | 70 | 55 | 2 50 | 4 60 | 10 75 |
| Shallow super—sec. hold., seps., secs., starters (4S-8)..... | 80 | 60 | 2 75 | 5 10 | 12 00 |
| Deep super..... | 30 | 21 | 95 | 1 80 | 4 25 |
| Deep super—frames, division-board (8-8)..... | 55 | 45 | 2 00 | 3 60 | 8 25 |
| Deep super—frames, div'n-board, fdn. starters (9-8)..... | 65 | 50 | 2 25 | 4 10 | 9 50 |
| Hive-stand..... | 25 | 15 | 65 | 1 20 | 2 75 |
| Cover, bottom, and body, with frames (BE5-8)..... | 1 60 | 1 20 | 5 25 | 9 90 | 23 00 |
| Cover, bottom, and body, with frames and starters..... | 1 70 | 1 25 | 5 50 | 10 40 | 24 25 |
| 1½-story without sections and starters (BE52P-8)..... | 2 15 | 1 65 | 7 25 | 13 50 | 31 25 |
| 1½-story with sections and starters (BE64P-8)..... | 2 50 | 1 85 | 8 25 | 15 30 | 36 25 |
| 2-story without sections and starters (BE522P-8)..... | 2 70 | 2 10 | 9 25 | 17 00 | 39 50 |
| 2-story with sections and starters (BE64P-8)..... | 3 30 | 2 45 | 11 00 | 20 50 | 48 25 |
| 2-story with frames and division-boards (BE55-8)*..... | 2 50 | 1 90 | 8 35 | 15 70 | 38 50 |
| 1½-story with frames and division-boards (BE58-8)*..... | 2 15 | 1 65 | 7 25 | 13 50 | 31 25 |

10-FRAME DOVETAILED HIVES.

| | | | | | |
|--|------|------|-------|-------|-------|
| Bottom board, 10-frame (A or B-10)..... | 32 | 22 | 1 00 | 1 90 | 4 50 |
| Cover-board, 10-frame (D, E, F, or G-10)..... | 43 | 33 | 1 50 | 2 70 | 6 25 |
| Empty body, 10-frame..... | 52 | 42 | 1 90 | 3 60 | 8 50 |
| Body with frames only..... | 90 | 70 | 3 10 | 5 80 | 13 50 |
| Body with frames and division-board (5-10)..... | 95 | 75 | 3 50 | 6 40 | 15 00 |
| Body with frames, division-boards, starters (6-10)..... | 1 05 | 80 | 3 75 | 6 90 | 16 25 |
| Shallow super, empty..... | 32 | 21 | 95 | 1 80 | 4 25 |
| Shallow super with sec'n-holders, separators (2S-10)..... | 60 | 50 | 2 25 | 4 00 | 9 25 |
| Shallow super with sec.-holders, sep., sections (3S-10)..... | 75 | 60 | 2 75 | 5 00 | 11 75 |
| Shallow super with sec.-hold., sep., sec., starts (4S-10)..... | 85 | 65 | 3 00 | 5 50 | 13 00 |
| Deep super, empty..... | 33 | 22 | 1 00 | 1 90 | 4 50 |
| Deep super with frames and division-board (8-10)..... | 60 | 50 | 2 25 | 4 00 | 9 25 |
| Deep super with frames, div'n-board, starters (9-10)..... | 70 | 55 | 2 50 | 4 50 | 10 50 |
| One-story hive, no starters (BE5-10)..... | 1 70 | 1 30 | 6 00 | 11 00 | 25 75 |
| One-story hive, with starters (BE6-10)..... | 1 80 | 1 35 | 6 25 | 11 50 | 27 00 |
| 1½-story hive, no sections or starters (BE52P-10)..... | 2 30 | 1 80 | 8 25 | 15 00 | 35 00 |
| 1½-story hive, with sections and starters (BE64P-10)..... | 2 65 | 2 00 | 9 25 | 17 00 | 40 00 |
| 2-story hive, no sections or starters (BE522P-10)..... | 2 90 | 2 30 | 10 50 | 19 00 | 44 25 |
| 2-story hive, with sections and starters (BE64P-10)..... | 3 50 | 2 65 | 12 25 | 22 50 | 53 00 |
| 2-story hive, with frames and div'n-boards (BE55-10)*..... | 2 65 | 2 05 | 9 50 | 17 40 | 40 75 |
| 1½-story hive, with frames, div'n-boards (BE58-10)*..... | 2 30 | 1 80 | 8 25 | 15 00 | 35 00 |

DOVETAILED CHAFF HIVES.

| | | | | | |
|------------------------------|------|------|-------|-------|-------|
| YW5 hive..... | 2 85 | 2 30 | 10 25 | 19 40 | 44 50 |
| YW52 hive..... | 3 40 | 2 75 | 12 25 | 23 00 | 52 75 |
| YW61 hive..... | 3 75 | 3 00 | 13 25 | 25 00 | 57 75 |
| Y cover..... | 60 | 50 | 2 30 | 4 00 | 9 00 |
| X cover..... | 75 | 60 | 2 80 | 5 00 | 11 50 |
| Chaff-tray..... | 25 | 20 | 85 | 1 60 | 3 00 |
| Super-cover..... | 10 | 10 | 50 | 90 | 2 00 |
| W chaff-body..... | 1 50 | 1 20 | 5 50 | 10 50 | 25 00 |
| W5 chaff-body..... | 1 90 | 1 50 | 6 00 | 13 00 | 30 50 |
| W6 chaff-body..... | 2 00 | 1 55 | 7 05 | 13 50 | 31 75 |
| Z winter-case body..... | 60 | 50 | 2 20 | 4 00 | 9 00 |
| YZ winter-case complete..... | 1 20 | 1 00 | 4 50 | 8 00 | 18 00 |

DANZENBAKER HIVES.

| | | | | | |
|----------------------------|------|------|-------|-------|-------|
| Danz. AD5 hive..... | 1 65 | 1 25 | 5 75 | 10 50 | 24 25 |
| Danz. AD52M hive..... | 2 50 | 1 95 | 9 00 | 16 50 | 37 75 |
| Danz. AD65M hive..... | 2 85 | 2 20 | 10 25 | 18 50 | 43 00 |
| Danz. 5 body..... | 90 | 70 | 3 25 | 6 00 | 13 50 |
| Danz. 6 body..... | 1 00 | 75 | 3 50 | 6 50 | 14 75 |
| Danz. 2M super..... | 85 | 70 | 3 25 | 6 00 | 13 50 |
| Danz. 3M super..... | 1 00 | 85 | 4 00 | 7 00 | 16 00 |
| Danz. 4M super..... | 1 10 | 90 | 4 25 | 7 50 | 17 50 |
| Danz. AD sample hive..... | | | 6 25 | 11 50 | 26 75 |
| Danz. 4M sample super..... | | | 4 50 | 8 00 | 18 75 |

† SHIPPING-CASES.

| | Nailed | 1 | 10 | 100 | 1000 | Nog'l. |
|-------------------|--------|----|------|-------|-------|--------|
| 12-in. 4-row..... | 30 | 22 | 1 80 | 16 00 | 15 00 | 13 75 |
| 10-in. 4-row..... | 30 | 22 | 1 70 | 15 00 | 14 00 | 12 75 |
| 12-in. 2-row..... | 20 | 15 | 1 20 | 10 00 | 9 50 | 8 75 |
| 10-in. 2-row..... | 20 | 15 | 1 10 | 9 00 | 9 00 | 8 25 |
| 16-in. 3-row..... | 25 | 16 | 1 30 | 11 00 | 10 50 | 9 75 |
| 8-in. 3-row..... | 20 | 16 | 1 20 | 10 50 | 9 75 | 8 75 |
| 6-in. 3-row..... | 20 | 15 | 1 10 | 10 00 | 9 25 | 8 25 |
| 7-in. 4-row..... | 30 | 20 | 1 70 | 15 00 | | 12 75 |
| 7-in. 3-row..... | 25 | 18 | 1 30 | 11 00 | | 9 50 |
| 9-in. 4-row..... | 30 | 20 | 1 70 | 14 50 | | 12 50 |
| 6-in. 3-row..... | 20 | 15 | 1 20 | 10 00 | | 8 50 |

RETAIL.

| | Nled
P't'd | 1 | 5 | 10 | 25 |
|--|---------------|------|-------|-------|-------|
| Bottom board, 8-frame (A or B-8)..... | 30 | 10 | 90 | 1 70 | 4 00 |
| Cover-board, " (E, F, or G-8)..... | 40 | 30 | 1 25 | 2 40 | 5 50 |
| Empty body, "..... | 50 | 40 | 1 80 | 3 40 | 8 00 |
| Body with frames and division-board (5-8)..... | 90 | 70 | 3 10 | 5 80 | 13 50 |
| Body with frames, div'n-board, found'n-starters (6-8)..... | 1 00 | 75 | 3 35 | 6 30 | 14 75 |
| Shallow super, empty..... | 30 | 20 | 90 | 1 70 | 4 00 |
| Shallow super—section-holders and separators (2S-8)..... | 55 | 45 | 2 00 | 3 60 | 8 25 |
| Shallow super—section-holders, seps., sections (3S-8)..... | 70 | 55 | 2 50 | 4 60 | 10 75 |
| Shallow super—sec. hold., seps., secs., starters (4S-8)..... | 80 | 60 | 2 75 | 5 10 | 12 00 |
| Deep super..... | 30 | 21 | 95 | 1 80 | 4 25 |
| Deep super—frames, division-board (8-8)..... | 55 | 45 | 2 00 | 3 60 | 8 25 |
| Deep super—frames, div'n-board, fdn. starters (9-8)..... | 65 | 50 | 2 25 | 4 10 | 9 50 |
| Hive-stand..... | 25 | 15 | 65 | 1 20 | 2 75 |
| Cover, bottom, and body, with frames (BE5-8)..... | 1 60 | 1 20 | 5 25 | 9 90 | 23 00 |
| Cover, bottom, and body, with frames and starters..... | 1 70 | 1 25 | 5 50 | 10 40 | 24 25 |
| 1½-story without sections and starters (BE52P-8)..... | 2 15 | 1 65 | 7 25 | 13 50 | 31 25 |
| 1½-story with sections and starters (BE64P-8)..... | 2 50 | 1 85 | 8 25 | 15 30 | 36 25 |
| 2-story without sections and starters (BE522P-8)..... | 2 70 | 2 10 | 9 25 | 17 00 | 39 50 |
| 2-story with sections and starters (BE64P-8)..... | 3 30 | 2 45 | 11 00 | 20 50 | 48 25 |
| 2-story with frames and division-boards (BE55-8)*..... | 2 50 | 1 90 | 8 35 | 15 70 | 38 50 |
| 1½-story with frames and division-boards (BE58-8)*..... | 2 15 | 1 65 | 7 25 | 13 50 | 31 25 |

| | | |
|-------------------------|------|-------|
| Hoffman Frames..... | 2 50 | 11 00 |
| Thick-top Frames..... | 2 25 | 10 00 |
| All-wood Frames..... | 1 80 | 8 00 |
| Shallow Frames..... | 1 80 | 8 00 |
| Danz. Frames..... | 2 25 | 10 00 |
| Danz. Sec.-holders..... | 2 00 | 9 00 |
| Danz. M Fences..... | 1 75 | 8 00 |

| | | |
|-----------------------------|----|------|
| Chaff Div-b'ds, nailed..... | 30 | 2 60 |
| " " flat..... | 15 | 1 30 |
| Plain " nailed..... | 10 | 90 |
| " " flat..... | 8 | 70 |

| SECTIONS. | No. 1. | No. 2. |
|---------------|--------|--------|
| Per 100..... | \$ 60 | \$ 50 |
| Per 250..... | 1 15 | 1 00 |
| Per 500..... | 2 00 | 1 75 |
| Per 1000..... | 4 00 | 3 50 |
| Per 2000..... | 8 00 | 7 00 |
| Per 3000..... | 11 25 | 9 75 |
| Per 4000..... | 14 60 | 12 00 |
| Per 5000..... | 17 50 | 15 00 |

| | | |
|--------------------------------|----|------|
| D Sec. Case complete..... | 15 | 1 30 |
| D Sec. Case, flat..... | 6 | 50 |
| D Sec. Case, 10-fr., flat..... | 7 | 60 |

| | | |
|---------------------------|------|------|
| Slotted Sec.-holders..... | 1 70 | 7 00 |
| Slotted Sec. Slats..... | 85 | 3 50 |
| Plain Sec.-holders..... | 1 40 | 6 00 |
| I Plain Slats..... | 85 | 3 50 |
| L Plain Slats..... | 60 | 2 75 |
| Slotted Separators..... | 90 | 4 00 |
| Plain Sawed "..... | 60 | 2 75 |
| Slat Separators..... | 1 50 | 6 75 |
| Fence Separators..... | 1 60 | 7 25 |
| M Fence Separators..... | 1 75 | 8 00 |

HONEY-EXTRACTORS.

| | |
|------------------------------|-------|
| No. 4 and 5 Novice..... | 8 50 |
| No. 7 and 10 Novice..... | 9 50 |
| No. 15 Cowan..... | 11 50 |
| No. 17 Cowan..... | 12 50 |
| No. 18 Cowan..... | 13 50 |
| No. 20 Cowan..... | 16 00 |
| No. 25 Cowan..... | 23 00 |
| No. 27 Cowan..... | 27 00 |
| No. 30 Cowan..... | 30 00 |
| No. 37 Cowan..... | 35 00 |
| Novice Honey-knife..... | 80 |
| Bingham "..... | 70 |
| Dadant Uncapping-can..... | 8 50 |
| German Wax-press..... | 14 00 |
| Swiss Wax-extractor..... | 3 00 |
| " " with genl. 4 00 | |
| Doolittle Wax-extractor..... | 4 00 |

SMOKERS.

| | | |
|-------------------------------|------|------|
| Jum. Corneil, 4-in. st.l..... | 25 | 3 30 |
| Standard " 3½-in. | 85 | 2 25 |
| Little Daisy " 2½-in. | 65 | 1 80 |
| Clark Smoker..... | 55 | 1 50 |
| Bee-tenet..... | 1 75 | |

ESCAPES.

| | | |
|--------------------------|----|------|
| Porter Escape board..... | 15 | 1 40 |
| Escape with board..... | 35 | 3 20 |

FEEDERS.

| | | |
|---------------------|----|------|
| Simplicity..... | 06 | 50 |
| Division-board..... | 25 | 2 20 |
| " " flat..... | 18 | 1 60 |
| Miller, nailed..... | 30 | 2 70 |
| " " flat..... | 25 | 2 30 |

COMB FOUNDATION.

| Name of Grade. | Size sheet—No. to lb. | 1 | 5 | 10 | 25 |
|-------------------|-----------------------|---------|----|----|-------|
| Medium Brood..... | 7½ × 16½ | 7 to 8 | 53 | 51 | 49 48 |
| Light Brood..... | 7½ × 16½ | 9 to 10 | 53 | 53 | 51 50 |
| Thin Super..... | 3½ × 15½ | 28 | 60 | 58 | 56 55 |
| Extra Thin..... | 3½ × 15½ | 32 | 63 | 61 | 59 58 |

* Add 10c per hive for fdn.-starters in these two hives.
 † Covers and bottoms over 7 inches wide to be in two pieces, and may be shiplapped together. This is made necessary by the increasing difficulty of finding wide boards for making covers and bottoms in one piece.
 12-in. 4-row cases have had 2-piece covers and bottoms for years; we are extending this to other sizes as well.

Price per lb.
 in lots of

California has had a light honey crop this year, but here is an encouraging letter from a resident of that State, in regard to the doings of a colony having a queen of the Superior Stock.

DOS MESAS, CALIF., June 26, 1902.

W. Z. HUTCHINSON, Flint, Mich.

Dear Sir:—I enclose you the photo. of a hive taken at 6:00 A. M. being the only time of the day that the sun shone directly upon it. The colony in this hive is the development of a three-frame nucleus, in which was placed the queen that you sent me last summer. You may remember that she was sent quite late in the season, as California seasons go. However, she raised enough bees so that they filled ten frames full of honey for winter. On account of the good showing of this queen last fall, I used her to breed from this season, taking larvae from the combs, per the Alley method, every five days. In spite of the loss in comb and bees, and the interruption to the labors of the hive, I have taken off 66 well-finished sections. Please bear in mind that this is a poor year, and most of my 145 big hives have given me nothing. These bees are the nicest bees to handle of any I have ever seen. While I do not suppose that you intended to send me a selected breeder, I am satisfied that this queen will compare favorably with any queen owned by anybody. If this will be of any aid to you in advertising Superior Stock, you are welcome to print it.

Yours sincerely, H. N. CROSS, M. D.

My friend, for \$1.50 I can send you a queen reared from the same strain as the queen possessed by Mr. Cross. She will come from the same breeder, and be reared in exactly the same manner. I will guarantee safe arrival, safe introduction, purity of mating, and entire satisfaction to the extent that the queen may be returned any time within two years and the money will be refunded, together with 50 cts. extra to pay for trouble.

Special Offer.—For \$2.00 I will send one queen, and the Bee-Keepers' Review for one year.

W. Z. HUTCHINSON, Flint, Mich.

100 per cent Profit from Bees

in California shown by U. S. Honey Report of 1899—a short year. Our 1901 crop of 300 cars of honey shows a profit of 130 per cent on the investment. By this same report the Eastern States show an average profit of only 50 per cent on the investment. 100 colonies in a good year will make a clear profit of 100 per cent. They are no expense in off years.

The Pacific Bee Journal Free!

We club with GLEANINGS (new or renewal) for \$1.00 a year. Send subscription for both to us at 237 East Fourth Street, Los Angeles, Calif.

The Pacific Honey Producers.

Incorporated for \$50,000; \$1 a share. Its property is manufacturing plant and apiaries. Prospectus on request.

GOOD FOR CUBA!

The letter below, entirely unsolicited, proves that the "Case" queens are GOOD for Cuba. Mr. Frierson bought 100 or more, last fall.

Friend Case:—The queens all came in good order. My bees, especially those I got from you, have superseded very few queens. Only two swarmed, and they were very much exposed to the sun. Notwithstanding the loss I had last fall, which caused me to divide up so late, I got a great deal more honey than my neighbors, and extracted later in the season. And now comes the pretty part: I have not fed a pound of sugar this summer, while all my neighbors have been feeding for some time. I have many hives now with 40 lbs. of honey, while the dark (Italians) have none, and I have to take frames of honey from your Italians and give to the dark ones—Italians, the parties who sold them called them. Call them what you will, it is very strange to me that they will starve while others in the same yard have such an amount of surplus. I want to get them strong early this season, then, if they bring in the honey as they did last season.

Ceiba Mocha, Cuba, Aug. 15. C. B. FRIERSON.

The above queens were reared from same mother and same method I am now using. Except for number of queens tested it is a fair sample of a big lot of testimonials.

Prices of queens from my golden strain: One select warranted, \$1.00; six, \$5.00. Fair average queen, 75c; six, \$4.00. Send for folder.

J. B. CASE, Port Orange, Florida.

Queens!

This is your last chance for this season to get Red-clover Queens from Quirin's famous strain, so hurry in your orders. We have files of testimonials like the following: Mr. J. Roorda, of De Motte, Ind., bought four dozen queens in the spring, and he says the workers are hustlers; while E. L. Messenger, New Haven, Ct., says the queen bought last season produced bees which beat any thing in that part of the country.

Price of Queens for Balance of Season.

| | 1 | 6 | 12 |
|--|--------|--------|---------|
| Selected..... | \$.75 | \$4.00 | \$ 7.00 |
| Tested | 1.00 | 5.00 | 9.00 |
| Selected Tested..... | 1.50 | 8.00 | |
| Extra Selected Tested—the best
that money can buy | 3.00 | | |

We guarantee safe arrival to any State, continental island, or any European country. Can fill all orders promptly, as we expect to keep three to five hundred queens on hand ahead of orders. Special price on 50 or 100. Circular free. Send all orders to

Quirin the Queen-breeder,

Post and Money-order Office, Parkertown, Ohio.

POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts, if you mention Gleanings (reg. price, 50 cts). Inland Poultry Journal, Indianapolis, Indiana.

Seasonable Offerings.



The Fred W. Muth Co.

Front & Walnut Streets

Cincinnati, Ohio.

Muth's Pound Square Flint-glass Honey-jars

with patent air tight glass stoppers, at \$5.50 per gross. Far superior to old style with corks. Try a gross. Just the thing for home market.

Crates of Two 60-pound Cans.

Been used once, but in good condition. In lots of five crates, 40c each; ten or more, 35c. This lot is limited; order at once.

Queens; the Best Money Can Buy.

Buckeye Strain three-banded are the genuine red clover workers. *Muth's strain of golden Italians* can not be surpassed. Either of above 75c each; six for \$4.00. Select tested, \$1.50 each. A trial will convince you. Send for our catalog of bee supplies.

QUEENS!

BY RETURN MAIL.

We are now breeding from three distinct strains; viz., Imported or leather color, Root's long-tongued or red-clover strain, and our old strain of white banded yellow Italians, or albinos.

PRICES:

| | |
|----------------------------------|--------|
| Tested, each..... | \$1.25 |
| Select tested, each..... | 1.50 |
| Warranted purely mated, each.... | .75 |
| Same, per half dozen..... | 4.00 |
| Same, per dozen..... | 7.50 |
| Untested, each..... | .65 |
| Same, per half dozen..... | 3.50 |
| Same, per dozen..... | 7.00 |

We have also a full line of bee-keepers' supplies including THE A. I. ROOT COMPANY'S GOODS. Send for our 32-page illustrated catalog.

W. W. Cary & Son,

Lyonsville, Mass.

HONEY QUEENS FROM TEXAS.

I can furnish queens of 6 different races, all bred in their purity in separate yards from 6 to 25 miles apart. Untested queens, 75 cts. to \$1.00 each. Tested queens of either race, \$1.50 to \$3.00 each. Breeders, \$3.50 to \$5 each. Bees by the pound, and 1, 2, and 3 frame nuclei a specialty. Prices cheap. Quoted on application. Price list free. Will Atchley, Box 79, Beeville, Bee Co., Tex.

Queens for Aug. and Sept., 60 cts.

Abbott L. Swinson, queen-specialist, will mail warranted American Albino Italians (best bees known) to introduce the stock, at 60 cts. each; \$6.00 per dozen. Everybody try them, and get the bee you need.

Swinson & Boardman, Box 358, Macon, Ga.

10 CENTS

That's all it costs to get acquainted with the

Rocky Mountain Bee Journal.

We want to send it on trial to every reader of *Gleanings* **Three Months for 10 cts.** This vigorous young monthly has just entered its second year on a **paying basis**, and has become the recognized mouthpiece of the bee-keepers of the great Rocky Mountain alfalfa regions. Address

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Special Notice to Bee-keepers!

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at Catalog Prices.

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182 Friend St., 1st Flight.

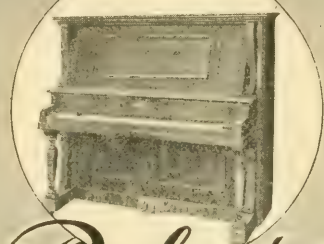
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Write for Free Catalog showing all styles and samples of work. Arlington guaranteed machines from \$11.95 up.

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REPEALERS: FIRST NATIONAL BANK, CHICAGO



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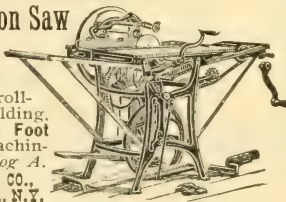
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Union Combination Saw

For Ripping, Cross-cutting, Rabbeting, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line Foot and Hand Power machinery. Send for catalog A.

SENECA FALLS MFG. CO., 44 Water St., Seneca Falls, N.Y.



MANN'S
LATEST
BONE
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BRINGS MORE EGGS

Makes healthy fowls. All latest improvements.

SENT ON TEN DAYS' FREE TRIAL.

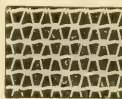
No money until you're satisfied that it cuts easier and faster than any other. Isn't that better than paying cash in advance for a machine that you never saw? Catalogue free. F. W. MANN CO., Box 37, Milford, Mass.



PAGE

THE COIL

in PAGE FENCE requires high-tempered wire. Page Woven Wire Fence Co., Box S, Adrian, Michigan.



FENCE! STRONGEST MADE.

Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free. COILED SPRING FENCE CO. Box 101, Winchester, Indiana, U. S. A.

HONEY QUEENS!

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy-Land Queens.

A prominent queen-breeder writes: "I have reared and sold over 5000 queens in the past few years, and I am using your stock exclusively, as it is the best I can get." Another writes: "The queen mother I got of you is the best queen I ever saw." A prominent writer for the *Review* states the Laws queen is making a fine showing. Many nice letters indicative of the superiority of Laws' queens on file. Prices: Tested or untested, \$1.00 each; six for \$5.00. Discount on large lots. Write for circular.

W. H. Laws, Beeville, Texas.

Queens! Queens!

We have five different yards, 5 to 20 miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinoes are bred for business. You can send in your orders at following prices the rest of this year: Tested, \$1.50 each; \$8.00 for six; \$15.00 per doz. Untested, 75c each; \$4.25 for six, or \$8.00 per doz. Fine breeders, \$5.00 each. Safe arrival guaranteed. Write for free catalog. Tells how to raise queens and keep bees for profit. The Jennie Atchley Co., Beeville, Bee Co., Tex.

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Imp't'd Queens Direct from Italy

Please send us your address on a postal card, and we will send you our price list of queens, written in English. Correspondence not sufficiently post-stamped will be refused. Our motto: "whatsoever ye would that men should do to you, do ye even so to them." Write Malan Brothers, Queen-breeders, "Apiario," Luserna, San Giovanni, Italy.



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Liberal Advances Made on Consignments Wholesale Dealers and Commission Merchants. Established 1875.

Long Tongues Valuable

South as well as North.

How Moore's strain of Italians roll in the honey down in Texas

Hutto, Texas, Nov. 19, 1901.

J. P. Moore.—Dear sir:—I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my out-apiaries next spring with your queens

Yours truly, HENRY SCHMIDT.

The above is pretty strong evidence that red clover is not the only plant which requires long-tongue bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75 cts. each; six, \$4.00; dozen, \$7.50. Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00. Safe arrival and satisfaction guaranteed. Circular free. I am filling all orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.
Pendleton County.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your advt in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Beeswax; bright yellow preferred.
I. J. STRINGHAM, 105 Park Pl., New York City.

WANTED.—To sell R. C. White Leghorn cockerels at \$1 each.
CHAS. SCHNEIDER, McIvor, Mich.

WANTED.—To sell an apiary of 30 colonies, a lot of bee-supplies, 5 lots—with house, barn, and two shops—in a small village. Must be sold; a great bargain for some one. Address for particulars,
H. D. EDWARDS, Delhi, Ill.

WANTED.—To sell knitting-machine and Tokology, and want to buy fall honey. Write
• MRS. A. L. DUPRAY, Camanche, Iowa.

WANTED.—To exchange one 400-egg Reliable incubator, used very little, and one egg cabinet for 400 eggs, for bees, bee fixtures, or any thing I can use in the bee business.
NOAH MONROE, Perkins, Oklahoma Territory.

WANTED.—Situation in an apiary for the winter; Mexico, Arizona, or Florida preferred. Have had some experience. Reference if requested.
A. C. BUTLER, Newcastle, Neb.

WANTED.—To buy, rent, or on shares, an apiary in good location in good agricultural section, for 1903; South preferred; 13 years' experience.
P. W. SAHLMAN, West Berne, N. Y.

WANTED.—To exchange extracted honey for foot-power saw, incubator, and offers.
W. C. GATHRIGHT, Las Cruces, N. M.

WANTED.—To sell a four-horse-power gasoline-engine; good as new; will sell very low for cash.
C. L. GOULD, East Dover, Vermont.

WANTED.—To name you astonishing low prices on White Leghorn chicks of the famous VanDresser laying strain; also on Barred Rocks.
P. HOSTETLER, E. Lynne, Mo.

WANTED.—Experienced man who knows how to take care of bees, to establish a large apiary on an extensive orchard property in Kansas, 60 miles from Kansas City. The place contains 40,000 apple-trees, 30,000 peach, cherry, and plum trees, large catalpa groves, a profuse array of wild blossoms, and several fields of alfalfa will be planted soon. This is an excellent opportunity for the right man. Address, stating experience and terms.
H. L. NICOLET, Star Office, Kansas City, Mo.

WANTED.—To buy bees south of the Ohio River. State prices and kind of hives.
B. STORRY, Marion, Mich.

WANTED.—Position in apiary by young man 20 years of age; have had experience; West preferred; to begin next March.
CARL WURTH, Falmouth, Indiana.

WANTED.—To sell 200 swarms of Italian bees. Also 7000 lbs. white extracted honey in 60-lb. cans; 5 acres choice improved land, and house and two lots; or will trade for merchantable business. Don't write unless you mean business.
ELIAS FOX, Hillsboro, Wis.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & Co., Chicago, Ill.

WANTED.—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no drip honey-cases for plain Danz. and 4½×4½ sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—One or more copies of Vol. II. Cheshire's Bees and Bee-keeping. Let us know in what condition your book is, and price wanted.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid.
O. H. HYATT, Shenandoah, Ia.

WANTED.—To sell in December, 160 acres of improved land for \$500, and 200 hives of yellow bees, and extracting tools; hive factory very cheap for cash. I was the founder of the apiary with which J. C. McCubbin, of Central California, earned his fame. So come for health where there is but little rain and no snow. Land is rich, and crops grow. This State has all kinds of climate and soil.
S. W. CONRAD, Poplar, Tulare Co., Cal.

WANTED.—To exchange an American fruit-evaporator (nearly new, capacity 8 to 12 bus., cost \$35) for honey or supplies. Will sell evaporator for \$15.
DEAN FERRIS, 1510 Maple Ave., Peekskill, N. Y.

WANTED.—To sell 75 colonies bees cheap; also some aster comb honey. Bid quick.
R. S. BECKETT, Sadlersville, Tenn.

WANTED.—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited.
TYLER BROS., Nicolaus, Cal.

WANTED.—To exchange second-hand 60-lb. cans, boxed, practically as good as new, at 35 to 40 cts. per case, f. o. b. at Chicago, for extracted clover honey at its market value.
B. WALKER, 28 33d Place, Chicago, Ill.

WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card.
N. A. KNAPP, Rochester, Ohio.

PAGE & LYON,

New London, Wisconsin.

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BEE-KEEPERS' SUPPLIES. . . .

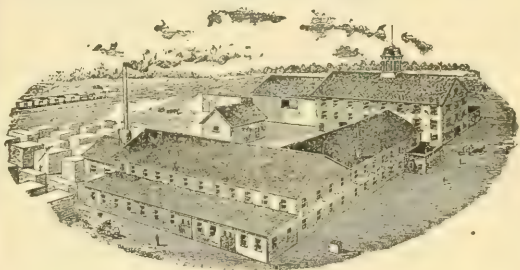
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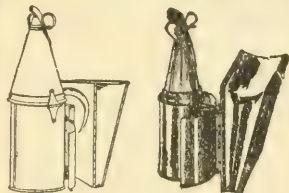
BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

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Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Ia.
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,

HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop ink drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsold by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

CHICAGO.—Comb honey is meeting with good demand, and the arrivals are easily disposed of at 15¢@16 per lb. for that which grades No. 1 to fancy. Very little of the lower grades are offered, but bring within two to three cents of No. 1. Amber grades of comb are also scarce, with no buckwheat offerings. Extracted is steady, white bringing 6½¢@8¢; amber, 6¢@7¢; Southern and odd lots of dark, 5¢@6¢. Beeswax wanted at 30.

R. A. BURNETT & Co.,
Sept. 19. 199 South Water St., Chicago, Ill.

SAN FRANCISCO.—Comb honey, 10¢@13¢. Extracted water-white, 6¢@6½¢; light amber, 5½¢@5¾¢; dark amber, 4¢@5¢. Beeswax, 27½¢@30¢. Bees, with me, are bringing in a little honey from hartshorn, and I am in hopes they will get in enough to winter nicely. They were almost bare of food before the hartshorn bloomed. This hartshorn comes up through the hard-baked ground and blossoms and thrives when the heat is the greatest, and requires no moisture. The honey is water-white, delicious in flavor, and candies readily. Comb honey is white as snow.

E. H. SCHAEFFLE,
Sept. 12. Murphys, Calif.

MILWAUKEE.—This market is now in good condition for shipments of honey of either extracted or comb. The old stock that is salable is all cleared away, and choice new-crop stock will meet the demand and bring fair values. We can now quote fancy 1-lb. sections in cases, 16¢@17¢; A No. 1, 14¢@15¢; old and irregular light or amber, nominal. Extracted, in barrels, cans, pails, and kegs, white, 7½¢@8½¢; amber, 6¢@6½¢. Beeswax, 28¢@30¢.

A. V. BISHOP & Co.,
Sept. 19. 119 Buffalo St., Milwaukee, Wis.

NEW YORK.—There is a good demand for comb honey. Shipments are late in coming forward. Fancy comb, 15¢@16¢; No. 1, 13¢@14¢; mixed, 11¢@13¢. Beeswax, 27¢@28¢.
FRANCIS H. LEGGETT & Co.,
Sept. 19. Franklin and Varick Sts., New York.

KANSAS CITY.—The demand still continues good for comb honey, but receipts are light and meet with ready sales at these quotations. We quote fancy white comb 15¢; No. 1, 15¢; No. 2 white and amber, 13¢; dark, 12¢. Extracted white, 6¢@6½¢; amber, 5¢@5½¢. Beeswax, 22¢@25¢.
C. C. CLEMONS & Co.,
Sept. 30. 306 Grand Ave., Kansas City, Mo.

SCHENECTADY.—No change in prices since last issue, and comb honey is selling freely. There is also quite a demand for extracted in 150-lb. kegs and 60-lb. tins for so early in the season. We quote fancy clover 16¢; A No. 1, 14¢; No. 1, 13¢@14¢; buckwheat, 11¢@12¢. Extracted, light, 6½¢@7¢; dark, 5¢@6¢.

CHAS. McCULLOCH,
Sept. 20. 523 State St., Schenectady, N. Y.

NEW YORK.—Comb honey is in good demand. Fancy white honey at 15¢, and some exceptionally fancy lots may bring a little more. No. 1 sells at 13¢@14¢; amber, 12¢; no arrival of buckwheat as yet, the season being late. Extracted is now firm at 6½¢@7¢ for white, 6¢ for light amber, and 5¢@5½¢ for dark. Beeswax firm at 27¢@28¢.

HILDRETH & SEGELKEN,
Sept. 20. 265-7 Greenwich St., New York City.

BOSTON.—The honey season is opening up in good shape. Supplies are not excessive; the demand good, and price firm. From present indications we can not see why the prices may not remain stationary right through the season, or, if any thing, with a little higher tendency. We quote our market to-day as follows: Fancy white, 1-lb. sections in cartons 16¢@17¢; No. 1, 15¢; No. 2, 14¢, with but light supplies. Honey in glass-front cases ranges about ½¢ to 1¢ per pound less in this market. Light amber honey in 60-lb. cans, 7¢@7½¢; Florida, 6¢@7½¢, according to quality.

BLAKE, SCOTT & LEE,
Sept. 22. 31, 33 Commercial St., Boston, Mass.

FOR SALE.—Sixty cases (24-section) of choice honey. For the fancy and No. 1 white clover, \$4.00 per case; No. 1 buckwheat, amber, and mixed, \$3.00 per case; No. 2, both dark and white, \$2.50; 72 lbs. extracted buckwheat, \$5.00. L. A. STAFFORD, Rt. 2, Cortland, N. Y.

WANTED.—Nice honey, either comb or extracted. Send samples of extracted, telling exactly how put up, and stating quality and price. We do not buy extracted honey without samples, and if a large amount of comb, a sample by express is necessary. I will take any amount at reasonable prices—carload would suit me fine.
UDO TOEPPERWEIN, San Antonio, Tex.

FOR SALE.—Fine quality of extracted honey, both clover and sweet clover, in 60-lb. cans, at 8¢; also bees in L. frames. Do not send local checks.
DR. C. L. PARKER, Sta. A., R. F. D., Syracuse, N. Y.

FOR SALE.—100 cases (two cans each) of fancy white clover extracted honey, at 8¢ per pound. No better gathered by any bees anywhere. Will shade ½¢ in 25-case lots.
WM. A. SELSER, Jenkintown, Pa.

FOR SALE.—Extracted honey—clover, amber, or buckwheat—in 170-lb. kegs. Write for prices before buying elsewhere. Sample, 8¢.
C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Light extracted honey; cans and kegs, 7¢@8¢ per lb. Sample, 8¢.
I. J. STRINGHAM, 105 Park Pl., New York City.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—White extracted honey from alfalfa in 60-lb. cans, at \$4.50 each; light amber honey mixed with Rocky Mountain bee-plant, fine flavor, \$4.20 each. Prices on small cans and pails on application.
M. P. RHODES, Box 216, Las Animas, Colo.

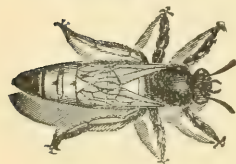
WANTED.—Comb and extracted honey. State price, kind, and quantity.
R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.



A Standard-Bred QUEEN-BEE For 25 cents



To a New Subscriber for the
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As the supply of these splendid Queens is limited, we prefer to use all of them in this way—for getting new subscribers. But if any one wishes to purchase them aside from the Bee Journal subscription, the prices are as follows: One Queen, 75 cents; 3 Queens, \$2.10; 6 Queens for \$4.00.



We expect to be able to fill orders by return mail, or almost as promptly as that, so there will be no great delay, at any rate.

Remember, the Weekly American Bee Journal one year and the Queen—both for only \$1.25—to a NEW subscriber.

Now for your name and \$1.25—and then the Queen that we will send you. Address,

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144 & 146 Erie Street, CHICAGO, ILL.

Send Sample copy of the American Bee Journal and Catalog of Root's Bee-Keeper's Supplies FREE.



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[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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J. T. CALVERT, Bus. Mgr.
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of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

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MODERN FARMER, St. Joseph, Missouri.

FOR SALE.—Extracted honey, from alfalfa, at 7½¢ for No. 1 select, 7¢ for No. 1, 6½¢ for No. 2; discount on 1000-lb. lots. Send for sample.

D. S. JENKINS, Las Animas, Col.

FOR SALE.—Several thousand pounds comb honey in Danzenbaker 4×5 sections. Shall commence filling orders in August. WM. MORRIS, Las Animas, Col.

We can place a few cars of comb and extracted honey; will be glad to correspond with parties having some to offer. We also solicit local consignments.

C. C. CLEMONS & Co., 306 Grand Ave.,
Kansas City, Mo.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer.

SEAVEY & FLARSHEIM,
1318-1324 Union Avenue, Kansas City, Mo.

WANTED.—Fancy and No. 1 white comb honey; also gilt-edged extracted clover in 60-lb. cans.

B. WALKER, 28 33d Place, Chicago, Ill.

WANTED.—Honey and beeswax. Mail sample, and state price delivered at here. C. H. W. WEBER,
2146, 2148 Central Ave., Cincinnati, Ohio.

WANTED.—Offers of car lots of honey, especially comb honey. Cash paid on delivery at your warehouse or station.

THOS. C. STANLEY & SON,
Apianists and Honey Buyers,
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FOR SALE.—572 lbs. No. 1 and 272 lbs. fancy clover comb honey in 4×5 plain sections, crated in 20-section no-drip cases, at 16¢ at 17 f. o. b. here.

E. D. TOWNSEND, Remus, Mich.

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Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

Marshfield Manufacturing Company, Marshfield, Wisconsin.

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105 Park Place.

Honey=jars!

1-lb. square jars, \$5.00 per gross; No. 25 jar, porcelain top, \$5.75 per gross; nickel cap, fancy, \$5.50 per gross. All clear flint glass. We ship from N. Y. City. Cartons, shipping-cases, every thing a bee-keeper uses. Tested Italian Queens, \$1.00; untested, 70¢. Catalog free. Apiaries are located at Glen Cove, Long Island.

WM. A. SELSER, PHILADELPHIA. 10 VINE STREET. HONEY SPECIALIST

Samples analyzed, \$1.00. Send a 3-ounce bottle, and chemist certificate will be furnished which will stand the test in court.

Orders Shipped Promptly.

We are running our large factory and shipping-department DAY and NIGHT, and are therefore in position to make prompt shipment of orders.

Lewis White Polished Sections are Perfect. Last winter's cut of Wisconsin basswood is the whitest we have ever seen. When you order No. 1 Sections from us you will get a strictly No. 1 grade in both workmanship and color.

Our Bee-hives are made of a fine grade of lumber and are perfect in workmanship. A full line of every thing needed in the apiary ready for prompt shipment. Catalog mailed on application.

A Suggestion. Do not put your money into *new-fangled* bee-hives, but buy a simple, serviceable, and well-made hive such as the regular Dovetailed Hive, arranged for beeway sections. Honey-producers in Colorado, one of the largest honey-producing sections in the world, use this style.

G. B. Lewis Company, Watertown, Wis.

Queens Now Ready to Supply by Return Mail.

Golden Italians have no superiors and few equals; untested, 75c; 6 for \$1.00.

Red-clover Queens which left all records behind in gathering honey; untested, \$1; 6 for \$5.

Carniolans, the so highly recommended, being more gentle than others; untested, \$1.00.

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GLEANINGS IN A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. **BEE CULTURE** ILLUSTRATED SEMI-MONTHLY Published by THE A. H. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO

VOL. XXX.

OCT. 1, 1902.

No. 19



HEARTSEASE has never been counted on as one of the honey-plants here, but this remarkably wet season has made it abundant, and the bees are busy on it. [So here.—Ed.]

RUSSIAN THISTLE was dreaded as a great scourge in the West not so very long ago. On the way to Denver, stacks of Russian-thistle hay were to be seen. It has a minute but really beautiful flower.

MENTION of foundation with cloth in the septum, p. 780, recalls the fact that years ago samples were sent out with tin foil in the septum. But I think not many ever invested in more than a sample of it.

MRS. K. — "So this is really artificial honey. Where does it come from?"

MR. K. — "I understand it is gathered from artificial flowers by artificial bees."

MRS. K. — "The idea!" — *Philadelphia Press.*

A SECOND CROP of white clover is reported at Medina, p. 766. It has been yielding here in September, but it seems like a belated first crop rather than a second crop. Fields that showed very few blossoms in June gradually increased until they were white in September, and the bees have perhaps gathered considerable from it.

CRIMSON CLOVER is described in *Amer. Bee Journal*, Jan., 1872. Strange it should have received no more attention until lately. [And it is not receiving the attention now it should in any of the bee papers. I should be glad to receive reports from those who have been testing this crimson clover in various portions of the country.—Ed.]

SOMETIMES I see the statement that, when a swarm issues with a clipped queen, the queen may be found on the ground with a

cluster of bees. In the hundreds of cases I have seen, such a thing has not often occurred. If the queen is found soon, she is looking out for herself; if left long enough for a cluster to form, she is generally back in the hive.

THE DENVER convention was a success. Rauchfuss, Working, Thompson, and all the rest, wore clothes just like white people, none of them appearing in blankets. If any of them had hatchets, they were carried as "concealed weapons." The convention was brightened by the presence of an unusual number of women.

GO SLOW on making plantations of catnip. I saw a beautiful block of it under cultivation in the lifetime of Jessie Oatman, but I don't believe it paid. It's an excellent honey-plant, however. Its favorite place of growth in this region is along the osage-orange hedges. [I put your "go slow" sentence in italics. See paragraphs elsewhere in this issue on this subject.—Ed.]

IT WAS A PLEASURE to meet at Denver that veteran, J. L. Peabody, the inventor of one of the first extractors. [He was the inventor, I believe, of the first honey-extractor ever put on the market in America. When I looked the matter up a few years ago, I found that there were several others almost cotemporaneous, but he had a little the lead; and if his machine had been geared as he desired to have it, it would have come very near being a perfect machine.—Ed.]

WAX SCALES, just as they have fallen from the wax-pockets, are to be found in many if not in all cases, among the debris on the floor of the hive upon coming out of winter quarters. That goes a little way toward proof that to some extent the secretion is involuntary, and independent of needs. [Are you sure that those scales found on the floor-boards in the spring were real wax scales? or is it possible our German friends across the water have been making some new discoveries along these lines?—Ed.]

GOLDENROD is giving a strong flow of honey at Medina, says ye editor. Abun-

dance of it here, but not a bee to be seen on it, and I don't know that it ever yields. [Since our last issue the weather has turned much warmer, and the bees are working on goldenrod as I never saw them before. At the Harrington yard, up on the hill, or the farm where we are temporarily sojourning, there is any quantity of goldenrod and heartsease in the vicinity; and during the heat of the day the bees are very busy on both.—ED.]

A. I. ROOT seems to be getting interested in bees, p. 783. Go kind of easy on it, Bro. A. I., so as to hold out, and help us to solve some of our later problems. [Say, doctor, I believe if you had amplified this thought you would have said A. I. Root once rode the bee-keeping hobby so hard that he tired of it. You now wish him to ride easy and slowly so that he may again contribute as formerly of his knowledge and experience to the bee-keeping world. But, say; let me tell you he is growing enthusiastic over some of the new devices that have been adopted by us youngsters.—ED.]

SOMETIMES it is spoken of as the common thing that, when a swarm issues with a clipped queen, the queen will be found on the ground with a cluster of bees. In the hundreds of cases I have seen, such a thing has not often occurred. If the queen is quickly found, she is looking out for herself; and if left long enough for a cluster to form she is generally back in the hive. [Is it not the common thing that the queen is not found quickly, and hence the bees find her before the bee-keeper? If that is the case the queen should generally be found with a cluster of bees.—ED.]

AFTER AN ABSENCE of four days at Sunday-school conventions I return home, Sept. 19, to find that the supers have been taken off the hives at the home apiary, giving an average of 45 sections per colony. About all of this has been stored since the middle of August, being, I think, the best fall yield I ever had. After having to feed up to July, I feel quite thankful for 45 sections per colony. [I saw those crates of honey stacked up on Dr. Miller's hives. I had been prepared to believe he secured no honey, and he was ready to think so too, I should judge, till he came to lift off the covers from some of the supers. But more of this at another time.—ED.]

SOME REPORT entire success in wintering colonies on solid combs of sealed honey; others entire failure. I suspect the difference depends on the amount of space under the bottom-bars. If there is only half an inch under the frames, there is no room for the bees to form a cluster, and they are bound to freeze. With two inches between bottom-bars and floor, they can cluster and keep warm, even if there isn't an empty cell in the combs. That is, they can in a cellar; outdoors not so well, for the cluster below the frames would be too much exposed. [Then you would favor two inches under the combs summer and winter. I be-

lieve it is your practice to have such space the year round.—ED.]

TO DECIDE whether a virgin queen is present, a common way is to give a frame of eggs and young brood, with the understanding that, if a young queen is present, no queen-cells will be started. It is pretty safe to follow the rule that, if no queen-cells are started, there is a queen present; but I have ceased to put faith in the opposite rule, that the presence of cells shows the absence of any queen; for too often cells will be started, even with a good virgin queen present. It's a good thing, all the same, to give the young brood. [You are just right. The presence of cells under some circumstances does not necessarily indicate the absence of a queen; but they may show that the old queen-mother is playing out, or they may show the fact that the hive was queenless at one time, and that a virgin present for some reason had not seen fit to destroy the cells and thus put out of the way any possible rival.—ED.]

HERE'S SOMETHING for the young man to think about. Speaking in *Fortnightly Review* of the drink bill of France, the United Kingdom, Germany, and the United States, John Holt Schooling, the expert British statistician, says: "The American total per head is less than half the total consumption per head in any of the three other countries. The superior sobriety of the American workman as compared with the Englishman has often been noticed, and observation in social grades higher than that of the artisan tends to show that American superiority in this respect is a general superiority not confined to workmen only. The developed alertness and prompt energy of the American may, it is quite likely, be due in some part to this relative abstinence from alcoholic drink." [This fact is very encouraging, if true, and I believe it is. Possibly it explains why American manufacturers are invading the European markets with better-made goods, and at less price, in spite of cheaper European labor. The time was, and does even now prevail to some extent in German factories, where employees are given rations of beer between meals. Some of these manufacturers are beginning to discover that this is a serious mistake. Just imagine a manufacturer in this country, who is looking at the dollars and cents, giving away beer to his men for the purpose of stimulating (?) their energies. Sometimes it is discouraging to think of the number of saloons in the United States; but when we come to think of the healthy public sentiment that is growing very rapidly, we can not help feeling that God still reigns.—ED.]

ALLOW ME to endorse what A. I. Root says, p. 782, about the unwisdom of trying to live a Christian life outside of any church, or refusing to unite with a church just because your own particular brand of church is not within reach. Even if one can live a Christian life all by his lone self, he can

be helped by being in a church, and can help the church at the same time. If it's right for each one to stay out of a church, then there's no need to have any churches. Just imagine the missionary work going on without any churches! The excuse that you don't want to be in a church where there are hypocrites will hardly go. If you can't stand it with them for a few years in this world, how are you going to stand it with them all the time in the other place? [Then you politely imply that the non-church member and the hypocrite may go to the same place—the bad place in the next world. But it sort o' seems to me the hypocrite, because he professes to be what he is not, because he is a living lie, pretending to be a follower of Jesus Christ when he is a servant of the evil one—why, it seems to me that such a person deserves to be in a hotter place than the ordinary non-church member who lives just as good a life as the other fellow, but whose life is not a living lie. I believe the great and just God will see that the hypocrite will get his just reward. I have no sort of patience with a professed Christian who will not affiliate with some orthodox body of believers, simply because his particular church has a different creed. I believe I would attend the services of any orthodox creed rather than stay away entirely.—ED.]



"Pa," said little Sammy King,
 "What makes hard coal so high?"
 "Because it's down so low, my son,"
 The father did reply.

The seventeenth edition of the British Bee-keepers' Guide-book, by Thos. Wm. Cowan, is now before the public in better form than ever, and fully abreast with the times. It has 172 pages besides a full index, and is, apparently, the same size of page (4x6) as the previous editions. This celebrated work is too well known to bee-keepers to need any thing more said in its favor. Probably no man among bee-keepers is better known for his practical and scientific knowledge of the bee than Mr. Cowan; and his name alone is sufficient guarantee for the faithfulness with which the work has been done. This book is specially meritorious for the great number of illustrations adorning its pages, every step being made plain through "eye gate." A fine portrait of Mr. Cowan is seen on the frontispiece. With his usual modesty he says its appearance there is very "distasteful" to him, and he consented to have

it appear only at the urgent solicitation of his friends. The size of the book renders it an easy matter to hold it in the hand either lying down or sitting up. It is a valuable acquisition to any bee-keeper, and has been translated into French, German, Danish, Swedish, Russian, and Spanish. Its outward appearance is elegant.

Concerning the reclaiming of alkali lands, the *Oklahoma Farm Journal* says, in reply to a correspondent:

"This problem has been studied extensively in California, where there are large areas of alkali lands, some of them having been made so by the use of irrigation water on higher levels. Trials of saltbushes in Oklahoma, in so far as we know, have not been very successful, but doubtless something could be made out of them. Their specialty is growing on land that is so salty that nothing else will grow.

"Where the alkali or salt spots are small, they may be improved by incorporating large quantities of coarse manure, straw, or any thing that will furnish organic matter, with the soil. This will improve the mechanical condition of the surface soil and make it possible to grow sorghum and other crops that remove considerable of the soluble mineral constituents. If drainage can be provided so that heavy rains will leach out the soluble salts and carry them away, it will be an advantage. At best the work is slow, and it will take years to get such spots in satisfactory condition."

REVUE INTERNATIONALE.

All the German reviews strongly recommend the cultivation of phacelia. It does well on all soils, yields a rich green fodder for cattle, and is a honey-plant par excellence, as its time of blooming lasts a month.

In the August number of the *Revue* will be found a detailed and interesting sketch of the life of the late Charles Dadant, written by his friend J. Crepieux-Jamin. Few things are better calculated to make us think still better of Mr. Dadant than the following tribute he pays to his wife:

Her death has made me ten years older. I do not pass a single day without mourning for her. Her loss is my only grief, as I am with my son and grandchildren. Camille's wife is as good to me as if I were her own father. Never, for twenty-five years, has a single word nor the least discord disturbed the harmony existing between those two women.

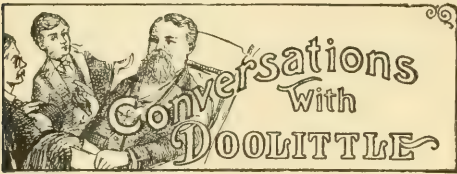
A writer says, "For a long time I have noticed the aversion that bees have for naphthaline. I prepared, accordingly, a paste formed of two parts of vaseline and one of naphthaline. After having melted the vaseline in lukewarm water I mixed with it the naphthaline finely pulverized. After rubbing the hands with this mixture I was able to overhaul 28 hives without receiving a single sting, while my assistant, in spite of veil and gloves, was obliged several times to save himself by flight from the fu-

rious attacks of the bees. The next day he also rubbed his hands with the same composition and was able to finish the examination of 17 other colonies without being stung once."



PROGRES APICOLE.

A contributor gives the following from his experience, which may be of great service to others: "Honey diluted with water, with the addition of a few drops of tincture of arnica, is excellent for washing wounds. Honey mixed with rye flour, and boiled till it is thick, and applied to burns, produces suppuration, and draws out the heat. If one holds a burned member in honey he will immediately find the pain ceases, and blisters will cease to form. The use of honey for burns is especially advised when they are on the face, and when no better remedy is at hand."



UNITING AFTER-SWARMS AND NUCLEI.

"Mr. Doolittle, I came over this afternoon to have a little chat with you about uniting bees."

"Very well, Mr. Brown. I have a few minutes' leisure, and would as soon talk with you as with any one. Why do you wish to unite your bees?"

"I have some light after-swarms and nuclei that do not seem to have sufficient bees to winter successfully as they are, and I thought if two or more of them could be put together their chances for wintering would be bettered; hence I wished to know the best way for doubling or uniting these little colonies preparatory to wintering, and the best time to do the same."

"My idea has been that the time of year to double up weak swarms or to unite nuclei is just as soon as the bees cease to gather honey, and I have the extra queens disposed of, as I wish, these queens being used to fill orders with the queen-breeder, and to supersede any poorer queens that the honey-producer may chance to have."

"Can you not tell me about the time of the year that would be best?"

"The last half of September and the first half of October is the time when I do the most of my uniting of small colonies, where I have such. The sooner it can be done after September 20 to 25 the better, for then the bees are given more time to fix their stores and hive in the shape they wish them for winter; and the nearer these things are to what they would be in a full colony which has had all summer to prepare for winter

in, the more assurance of successful wintering we have."

"Why are not these united after-swarms in just as good shape for wintering as any colony, providing they have the same amount of bees and honey?"

"A hive which has its combs all overhauled after the 25th of October, and put back promiscuously, is in poor shape for winter, as the nest prepared for winter, with unsealed honey surrounding it on all sides, is thrown out of shape and made as uncomfortable to the bees as a bed would be to a person were it thrown over a pile of stones instead of resting smoothly on bed-springs. No great disturbing of the winter-nest of the bees should be done later than October 25th to 30th, unless it is a positive necessity, north of 40 degrees north latitude."

"I think I understand this part. Now, how shall I do the uniting?"

"The plan which I have used of late years is the one which I prefer to all others, after having tried them all, and is as follows: When the time comes to unite I select the hive having the queen I wish to retain, as the one to contain the united colony. I now open this hive and take out what combs I think will be necessary, leaving those containing the most honey, when those which are left, being sure the queen is on one of them, are placed next one side of the hive, as closely together as I wish them to be left for wintering. The bees which are on the combs to be taken away are now shaken off so they can run back into the hive, which, after closing, is left as it is, ready to receive whatever is to be united with it. I next go to the one or more colonies which are to be united with this one; and if they have a queen she is hunted out and disposed of as I desire, when all the frames are removed but two or three, in accord with the number of bees there are in this colony."

"Which combs do you leave this time?"

"The combs left each time are usually those having the most honey in them, so that the united colony may have as much honey as possible, for it would be a rare thing for such colony to have too much honey."

"Do you fix these combs as you did those in the first colony?"

"No. These two or three combs are now spread apart from 1 to 1½ inches, and placed in the center of the hive, when the hive is closed and the bees shaken off the combs taken out, so they can run in with those left on the spread-apart combs. I also fix any others that are to be united, in the same way, in some cases putting as high as four or five in with the one having the queen, but not usually more than one, two, or three, according to the number of bees each contains."

"How long do you leave them thus?"

"I now wait till some cool, cloudy, raw, windy day, or some morning when there has been a frost the night before, or nearly so, when I am ready for the uniting, which

is very simple. The hive containing the queen is uncovered; or, if the cover next the bees is a mat or quilt, this is rolled back till the comb next the vacant side of the hive is exposed, when I go, smoker in hand, to those ready to be united with it, blow a few dense puffs of smoke in at the entrance, quickly uncover the hive, blow in freely of smoke over and around the spread-apart combs, when I quickly set down the smoker and place the first finger of each hand between the first two combs next to me; and if three, the big fingers between the next, when the third and little fingers clasp over on the outside of the frame the farthest away, the thumb tightening on the side of the frame next to me at the same time, when the three frames, bees and all, are lifted out all together and carried to the open hive having the queen in, which is to hold the united colonies, and lowered into said hive all at once, in a body, the same being placed close up to the side of the exposed comb, and, after the fingers are taken out, the frames are adjusted to the distance I wish them to stand for wintering. The quilt is now rolled over all the frames but the last, when another lot, and still another, if necessary, are brought in the same way, till the required number are in, when the hive is closed and the uniting accomplished, so far as that hive is concerned."

"Why did you spread the frames apart as you told about when fixing for uniting—so you could put your fingers between the combs easily?"

"Partly on that account; but mainly so that, if the day is cool and raw enough, or the night before has been cold enough, the bees which are to be carried will all be compactly clustered on and between the spread-apart combs; and after you get the hang of the thing a little you can carry them where you wish, with scarcely a bee flying in the air or being left in the hive."

"That is quite a scheme, surely. But why not leave more than three combs?"

"The reason why only three combs are to be left under any circumstances is, that a person can not grasp more than these with the hands at one time; and to separate the clustered bees in any place is to make a bad job in losing bees and have them fly all over and out into the cold and perish."

"Is that all there is to be done in this matter of uniting?"

"All that is entirely necessary; but it is better, both in looks and to insure that none of the bees return to the old stands to stay there, that the empty hives and all pertaining to them be removed from the old location. By thus removing the hive and stand, and clearing every thing away that would look in any way home-like, no bees are lost by returning, although some will return and hover over the old spot on the first flight for a little time; but you will soon find them with fanning wings at the entrance of their new home, which they accept ever afterward."



THE account of my visit to Dr. Gandy, at Humboldt, will take the place of my regular travels in this issue. The western series, taking in the region of Portland, Ore., and returning by Idaho, will be resumed in our next issue.

I HAD a delightful visit with Dr. Miller after returning from Humboldt on my way home. At 71 the doctor seems to be hale and hearty, and is as enthusiastic about every thing that pertains to bee-keeping as he ever was in his life. May he live long to bless the bee-keeping fraternity with his helpful advice and bright breezy paragraphs.

A 6½-POUND girl has recently gladdened the home of Mr. Harry Howe, of Artemisa, Cuba. Mr. Howe, it will be remembered, was one of Coggshall's lightning operators, and he had the reputation at one time of slinging more honey out of the combs than any other man. Indeed, I believe he holds the record yet. I have no doubt that the new arrival will be something on the lightning order. Congratulations to our friends.

THE fall flow of honey over the United States will be heavier than for many years past, but not heavy enough in most cases to yield any surplus, but to render the feeding of sugar syrup unnecessary. The heavy and copious rains early in the season have given a wonderful stimulus to the white-clover plants all over the United States; and their effect on goldenrod, heartsease, and many of the other fall bee-pasturage plants, has been such as to make them all abundant and vigorous in growth. It has been many years since either heartsease or goldenrod yielded honey in our locality; but both are well covered with bees during the warm portions of the day.

DR. MILLER THE AUTHOR OF ANOTHER BEE-BOOK.

I HAVE before me the Pennsylvania Report of the Department of Agriculture, Part I. This volume is particularly interesting from the fact that it contains 113 pages of matter on bee culture, written by no less a personage than Dr. C. C. Miller. It seems the State of Pennsylvania decided to place in one of its reports an elaborate treatise on bee culture, and this now appears, as I understand it, for free distribution to the people of Pennsylvania, at least. I have read over a number of pages, and I do not see how any thing could be more orthodox or more up to date than that which Dr.

Miller has prepared. Indeed, I do not believe any one could get up a better short treatise on bee culture than this one. It was issued some time ago in the form of a pamphlet by the State of Pennsylvania, styled "Bulletin 77." Those desiring the bulletin should apply to the Hon. John Hamilton, Secretary of Agriculture, Harrisburg.

A SOUVENIR OF THE DENVER MEETING.

ONE of the finest convention souvenirs that was ever issued is a booklet of some 50 pages, entitled "Bees in Colorado," and is gotten up in the finest style of the printer's art. It gives pictures of some of the most prominent bee-keepers of Colorado and their apiaries, and at the same time furnishes an array of interesting facts and data, covering the industry as a whole as it is carried on in Colorado. D. W. Working, the author and compiler, shows that he has an eye for the beautiful as well as the useful. Copies of it can be obtained, doubtless, of D. W. Working, Denver, Col., by inclosing 12 cents.

ANSWERING QUESTIONS.

WE are always glad to answer questions; but sometimes a correspondent will go into a great mass of unimportant details, occupying eight or twelve pages of note paper, and perhaps at the end of the whole there will be one single question. The reading of such communications takes considerable time; and if we happen to be crowded, the letter may be shoved to one side till we get time to answer it; and the probabilities are that we will never get the time.

We will try to answer all questions promptly, providing those questions are succinctly and carefully stated. Paragraph each question, and do not add any more details than are absolutely necessary for the proper understanding of the situation. If you desire to get information, get down to the meat of what you wish to know in as few words as possible.

SNAP SHOTS FROM THE DENVER CONVENTION OF NATIONAL BEE-KEEPERS' ASSOCIATION.

As announced in our last issue, this meeting was a success—not that it was the largest in attendance, for the failure of the honey crop throughout the major portion of Colorado cut down a local attendance that otherwise would have been large. At present I believe the last convention of the Association at Chicago holds the palm for the largest attendance of any previous or subsequent meeting. But Denver will hold the palm for representative attendance, for royal hospitality, for mileage of travel of the members who attended.

I said *representative*. I believe this was the largest *representative* gathering of the Association ever held in its history. Sixteen States outside of Colorado had dele-

gates at the convention, and were apportioned something as follows: 6 from Ohio; 5 from New York; 4 from Illinois; 4 from Utah; 3 from Missouri; 3 from Nebraska; 2 from Iowa; 2 from Michigan; 2 from Arizona; 2 from South Dakota; 2 from Canada; 1 from Texas; 1 from Kansas; 1 from Washington, D. C.; 1 from California; 1 from Wisconsin. Of course Colorado was represented most largely of any State.

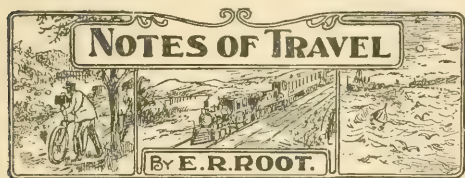
As nearly as I can figure it, the mileage traveled by the delegates to this convention from various portions of the United States was greater than that of any other meeting the Association ever held. Bee-keepers came from the extreme East, the extreme South, the extreme West, and the extreme North—from all over. One man from Utah actually *rode 120 miles on horseback over the desert* to get to a railway station in order that he might get to this meeting. A number of others drove 20, 30, 40, and even 50 miles to get to their railway stations.

Another feature was Mr. H. E. Bliss and wife, of New York, who were present. If I am correct they have not missed a convention of the National for a number of years. It makes no difference where the meeting is held, Mr. Bliss is interested enough to come. He is quiet in manner, rarely pushing himself forward; but any man who will travel hundreds of miles, year after year, to attend the National, and who is in no way connected with a bee journal nor with the supply business, ought to have a gold medal; and at some future time I hope to introduce him formally to our readers. Although I have been at all the meetings except the one at St. Joseph and one in Canada, for the last ten or twelve years, I failed to get knowledge of the fact that our friend Mr. Bliss, until the Denver meeting, was a regular attendant.

But how about the convention? Generally speaking it was a good one. It was marred a little in some of the sessions by too much parliamentary talk—too much of hair-splitting, but through no fault of the local bee-keepers. It is to be regretted that the time of some of these conventions has had to be taken up with parliamentary or constitutional questions. I do not mean to imply that these can be done away with altogether; but somehow some plan should be contrived in advance by which all questions of that nature could be referred to a committee who can report at some of the sessions, and thus save taking up valuable time. At the Denver meeting, for instance, there were those who had traveled hundreds of miles, who came not to hear parliamentary talk, but to gather information on vital questions connected with the industry. Constitutional questions should be worked over by the Board of Directors by correspondence. A formal report could then be submitted by one member, and the adoption or rejection of the report would then take place at the next annual election, by ballot. Somehow or in some way bee-keepers who pay down their hard-earned dollars to attend these

conventions, and who do not care a rap about parliamentary questions, should have some assurance in advance that they will get what they pay for—the hearing of valuable discussions and the pleasure of meeting friends face to face, whom they have known long through the printed page and through correspondence.

In our next issue I will attempt to give very briefly a summing-up of some of the discussions.



A VISIT TO HUMBOLDT, NEB., TO SEE DR. GANDY.

As previously announced in these columns, Mr. Hutchinson and myself and Mr. E. Whitcomb, of Friend, Neb., called on Dr. Gandy to learn something about his wonderful yield, his catnip-fields, and, in general, his artificial pasturage. Mr. Whitcomb and Mr. Hutchinson had preceded me by two days, having gone to Humboldt on the Monday following the convention. We were driven over the territory for miles around, shown outyards, and the general bee pasturage of the locality. I did not see any large fields of catnip; and the largest patch all in one place was about the size of an ordinary dooryard; but we did find that catnip had been sown all along the roadsides over which we went, leading into town. The plants were of good size, thrifty in growth, and as a general rule were close to and under the osage-orange hedge fences.

Dr. Gandy took me personally over one stretch of road leading out from town, and coming back another way, covering a distance of eight miles. There was no doubt about it—catnip had been sown along the roadsides, and in some cases it had been mown down by the township trustees, together with sweet clover and every thing else along the way. But the catnip-plants close to the hedge fences were not molested. If one did not look sharp he might fail to see them, so closely interwoven were they with the foliage of the osage-orange hedge. I also found that on two other roads, leading from and into town, catnip was scattered in a like manner; and Dr. Gandy told me that all the roads were similarly skirted with catnip from seed which he or his men had sown. There were also some small patches a yard or two square of the plant in his home apiary; but so far as we could learn there were no large fields anywhere. Indeed, the doctor called my attention to the fact that he did not claim to have such fields. What he did say was that the

“ideal bee-keeper” he was describing in July 15th GLEANINGS would have 25 or 30 acres of catnip, and as much of sweet clover, and that this amount of acreage would be sufficient to take care of 300 colonies.

As to whether Dr. Gandy has 3000 colonies or not, we had no way of proving or disproving without prolonging the allotted time at our disposal. There were something like 100 colonies at the home yard, and we visited one or two outyards that had about an equal number. As nearly as I could ascertain, the doctor does have a large number of bees. Some of this number he and his son operate personally. Another portion is run on shares by farmers who lease his farms, of which he has a great number. Another portion of the bees is sold outright under a contract subject to certain conditions. If the purchaser is able to fulfill these conditions, the title to the bees will pass from Dr. Gandy to himself. Some of the bees, the doctor says, are located along the Missouri River, a considerable distance away. Some are in other counties, so it would be almost impossible to make a count of the entire number without taking weeks of time.

As to an average of 300 or 400 lbs. of honey per colony, Dr. Gandy asserts that he never claimed that he secured such yields from the entire 3000 colonies; that the 400 lbs. average referred to his home apiary only; that, moreover, some of his tenants who have his bees are indifferent and incompetent, and the amount he secures from such tenants is necessarily small.

At the home yard the colonies were two or three stories high, and there was evidently considerable honey as nearly as I could ascertain from “hefting” the hives in the rear. How much of this was catnip I could not say; but at the time of our visit bees were working on heartsease, of which there is an abundance in the vicinity; also wild cucumber and other wild pasturage. There had been a very heavy flood earlier, in the season which had cut down the yield per colony very materially this season. There was little or nothing from white clover; but, as nearly as I could judge, the amount of honey secured from catnip is not large under present conditions. But the doctor gave us some honey to taste, that had an unmistakable flavor of catnip. In was beautiful in color, of good body, and excellent in flavor. If he shall be able some time in the future to carry out his idea of getting large fields of catnip (I saw several leases having as one of the conditions that the tenants shall sow a considerable amount of catnip and sweet clover) he may be able to demonstrate that the “ideal bee-keeper” that he described will be able to get, on an average, not only 100 but 300 lbs. per colony.

On one of our long drives we found the doctor had done quite a little by way of scattering the seed of buckbush—a very important honey-plant; and there were some fair-sized patches of it on some unimproved land. But buckbush was not considered by

the doctor as any thing to be compared with catnip and sweet clover; but between the two last, catnip would rank considerably ahead in the amount of honey it would secrete as well as in the quality of it.

Taking it all in all I am inclined to the opinion that Dr. Gandy's large yields, which he limits to his home yard, are due more to the large hives, the general excellence of his locality, and to the natural bee pasturage that grows *spontaneously*, than to any artificial sowing of catnip, though there is no doubt that he gets some honey from it.

The soil in and about Humboldt, and, in fact, all through that portion of the State, is very rich and productive; and the wild pasturage, where it is allowed to exist by the farmers, is very abundant. The catnip that grows around Humboldt attains about twice the size of that found in Ohio, although I found plants in and around Marengo, Ill., that would compare very favorably with those in Nebraska. Asked as to whether catnip would grow in the open fields, Dr. Gandy said he saw no reason why it would not; that it had grown in patches when exposed to the direct rays of the sun. Still it seemed to me that the plants sought the shade of some other plant, especially that of the osage orange. Indeed, Dr. Miller, whom I saw later, told me that one of the characteristics of catnip in his vicinity was that it would be found hugging close to the osage-orange fences. Personally I am inclined to doubt, although I may be wrong, whether catnip could be made to grow in an open field like wheat, alfalfa, and other farm crops. My own judgment is that the only thing we can do is to sow it in waste places on lands otherwise worthless, shaded to a greater or less extent, and remote from the scythe of the township trustees. I am, therefore, not extremely hopeful that the average bee-keeper in average localities will be able to increase his honey crop very materially by sowing catnip. At the same time, I am going to sow seed in our vicinity and see what it will do.

Dr. Gandy is to be commended for the individual effort he is making in testing the value of catnip and other honey-plants. Indeed, I believe he has done more to study up and test this subject of the artificial pasturage of bees than perhaps any other man. His enthusiasm is little short of contagious. Possessed of any amount of capital, and having unlimited faith in catnip, he may be able to show some good results. The only wonder to me is that he has not yet succeeded in getting large fields of catnip before this; but it is possible he did not realize the importance of the plant till within the last year or two.

THE STATEMENTS OF SOME OF DR. GANDY'S NEIGHBORS.

It is but fair to say that a number of bee-keepers and others in the vicinity of Humboldt met us at different times, and asked how Dr. Gandy could average 300 or 400

lbs. of honey per colony, spring count, when they could not with their bees, in the same vicinity, get more than 25 or 50 lbs. They also stated that the value of catnip, in their opinion, had been greatly overrated by the doctor; and while they had nothing against him personally they felt that his article in our July 15th issue was misleading. Dr. Gandy had stated that catnip was very difficult to eradicate when once started. This made it all the more valuable as a forage-plant. "But," said the local residents, "if that is true, then there is danger of its being a pest to those who sow catnip indiscriminately, as they may find they are introducing a bad weed on the farm."

Dr. Gandy feels that some of his neighbors are jealous of his success, and that, because they can not produce such results as he does with bees is no reason why he can't. Certain it is he has out-distanced them all in the amassing of property, and his success and wealth have, he says, made him the special object of envy. No one contradicts the claim that Dr. Gandy is a successful business man; that he owns farms in several counties, and that his total land-holdings might be 20,000 acres. Besides owning several hotels he owns one or two grain-elevators, and he is interested in various kinds of property in different portions of the West. His total wealth would aggregate from one million to a million and a half dollars; and that leads me to say that Dr. Gandy does not claim to have made *all* this money from bees. But he does claim that his bees gave him a *start* after his failure; and with this start he was enabled, through the rise of land and other investments, to get to the point where he is.

Dr. Gandy feels that the readers of GLEANINGS have read more into his article than he put in it. For instance, he does not claim to have made 400 lbs. per colony from each of 3000 colonies. The editor of the *Pacific Bee Journal* figured up the sum total of all this to be \$135,000; and some one else has estimated that Dr. Gandy's claims of honey production, if sold locally, as he says, would amount to about 1000 lbs. to every man, woman, and child in the vicinity—an amount, of course, all out of proportion to the average consumption of an ordinary person. But these misconceptions doubtless arise from Dr. Gandy's having described his ideal bee-keeper, inadvertently leaving the reader to conclude that he (Gandy) had actually fulfilled the conditions of such a bee-keeper. If, therefore, he had 3000 colonies, and if he obtained 400 lbs. per colony—well, well! no wonder people shook their heads. The doctor's article, as I read it over, is somewhat susceptible of misunderstanding; and, unfortunately, the general reading public has construed it all through to the point of exaggeration, when, in fact, the doctor disclaims any intention of so doing.

I took a number of photos in and around Humboldt, and at a later time will present them.



BRUSHED SWARMS.

Some Unpleasant Features; The Danger of Absconding after Brushing; the Building of Drone Comb; Pollen in the Sections.

BY F. GREINER.

It seems that, before a certain thing is thoroughly understood and fully appreciated by the many, it has to be brought up again and again, in the press and everywhere, talked about in the convention, harped on in private conversation, etc. That seems to be the way because one person can seldom so present a thing at one time that everybody will see it in the right light. Therefore we keep on talking about lots of other things as well as "brushed swarms."

When Gravenhorst first (to our knowledge) made known this method of treating strong colonies, perhaps only few realized the value and the importance of it. It found few followers. G. M. Doolittle hit on the same thing, probably without any knowledge of what the former had written. This must have been in 1877 or '8; at least, it appeared in print about that time, and I practiced it according to his instructions in a limited way for a few years, but without seeing the possibilities the method afforded. Some years later the keeping of out-apiaries made it desirable to manage our bees in such a way as to prevent their swarming to keep them at work rather than to let them go to the—woods. This was the time when we came back to the Gravenhorst or Doolittle practice.

One reason, perhaps, why the method of brushing swarms did not come into more universal use sooner was because it has some drawbacks as well as disadvantages. These drawbacks have not been kept from the public. Stachelhausen and others have attempted to show them up. Let us consider them again.

A brushed swarm is not always a success. About 20 per cent turn out to be failures. Why? Because of absconding. Robbing a colony of all its possessions has a tendency to produce a discontented condition among the bees. I have not yet found out to my satisfaction just how this brushing should be done to prevent such a state of affairs, for the majority of swarms go right on and do their level best after the operation. Only the few seem bound to seek other quarters. Entrance-guards do not every time prevent absconding. I have recorded several cases of absconding when the guard had been applied. In one case

the queen was left with just a handful of bees. In another the queen and all was gone. Still I do make a practice of applying the entrance-guard after the bees (and in particular the queen) have gone in.

In one instance last summer I removed the guard on my next visit three days after applying it. The swarm left me even then. I now keep the entrance-guard on for a week after brushing.

A comb of open brood is very apt to hold the bees, but does not every time. The rule is a good one, but there are exceptions.

A brushed swarm is also apt to build a large lot of drone comb. Natural swarms, on an average, build far less of it. The age of the queen has a good deal to do with this matter. If every brushed swarm had a young queen there would not be much trouble as to building drone comb. Unfortunately the average honey-producer has not things so well regulated but that a portion of his colonies are headed by old mothers. These colonies, if brushed, will build the undesirable comb.

In the hurry of the busy season it is next to impossible to keep close track of our brushed swarms as to their building comb. At the close of our white-honey season they should then have at least an overhauling. The combs taken from them in the early part of the season may in part be used to replace drone combs, and to regulate things generally in their brood-chamber. If the drones in the combs that are to be removed have not yet hatched I behead them with an uncapping-knife and shake the carcasses out of their cells. They make good chicken feed and excellent bait for fishing. The combs are placed in upper stories to be extracted later. Finally, they may be melted up, if not wanted for extracting-combs.

It is not an uncommon thing for brushed swarms to store pollen in sections. Nearly all my pollen-containing sections have come from this source. A small brood-chamber, and particularly a shallow one, will often force a good deal of pollen into the sections when the honey-flow is light, as is usually the case with the large majority of honey-producers. The 400 lbs. surplus per hive (Gandy), or the 450 lbs. of section honey (Wilson, Nebraska, p. 739), appear like myths to most of us, and I think we having these meager honey yields are excusable for not believing such reports. This is voicing the sentiment of the people hereabouts.

In order to prevent pollen being stored in sections, a zinc excluder will help. The old Heddon honey-board, of which James Heddon once said, "I want to go on record as saying my honey-board has come to stay," is the best thing, any way, to produce fancy comb honey, and may also be used for the purpose here. It lessens pollen in the supers; it lessens travel-stain; it lessens burr-combs and propolis. Let us give it another trial, friends. We would certainly have better quality if we used it extensively.

I am about done, and only wish to say that, with all the enumerated disadvantages, I still continue to "brush." The best yield (comb honey) I have had in out-apiaries came from the brushed swarms. It is the best we can do under the circumstances.

Some of the brushed swarms have now superseded their queens. With others I have taken matters into my own hand. It is about the same with my natural swarms.

As to melting up good combs (worker size) I would say, don't do it. They are worth more as combs than as wax. If I had a surplus I would advertise them for sale.

A set of combs full of brood, as we gain them by the brushing method, may be set up anywhere in the yard as a separate colony after having been kept eight days on some other hive with queen-excluder under it. A matured queen-cell or a queen should be given after the separation. A colony thus formed will do well on buckwheat, and be in good shape for another year. If thought best, or in order to reduce the number of colonies, it may also be reunited with its parent having the old queen.

If Mr. A. J. Wright is right—if really a drone is not virile unless his mother has mated, then his virility is due to the influence of the drone that mated with his mother, and he has, therefore, a *father*. I am glad there is a prospect of the drone recovering his honor, for it is a sort of dishonor not to have a father, though nobody can be made responsible for any such lack in the list of his ancestors.

Sept. 6, 1902.

"SHOOK" OR BRUSHED SWARMS.

The Plan a Success, but there are some Important Things to Remember.

BY GEORGE SHIBER.

I have for a number of years practiced shaking bees off their combs at the approach of the honey-flow (white clover with me), and I must say the plan is all right. It practically cures the swarming fever for that season; in fact, it is as good a cure as swarming itself. But there are several things to be taken into consideration when practicing the plan. First, we ought to wait until queen-cells are under way; for if we do not, such a colony may not swarm nor offer to. We are so much ahead in saving labor, although it can be done if the hive is very populous; but we must observe very carefully the following:

Second, we must cause the bees to fill themselves with honey. This is important.

This is my method of making these so-called "shook" swarms. For instance, if a colony is examined, and we find queen-cells started, a hive is prepared with starters. About six frames is the number I use; sometimes five, but never more than seven. Now find the queen and set the frame she is on to one side. Before this the colony

should be smoked and handled somewhat roughly so the bees will be filled with honey, as Mr. Stachelhausen says. In fact, Gravenhorst, in *GLEANINGS*, some twelve or fifteen years ago, laid special stress on this point. Now place a queen-excluding honey-board on the new hive, and a super with foundation only. Leave the partly filled super on the old hive for a day or two. This saves pollen in the sections until the queen commences to lay in the new comb built from the starters in the brood-chamber. Then the unfinished super from each hive can be placed on top of the super on the new hive, so that now your new hive contains the swarm and two supers. But, to go back to the shaking of the bees.

Take a newspaper and spread it down in front of the entrance of the new hive, for you will, in shaking the bees off, shake a lot of their honey on to the mass of bees in front of the hive; and if it is dirty in front of the hive many bees will be so daubed up as to perish, so I use a paper. Shake most of the bees off the frames close to the entrance. Use a little smoke so they will run in quickly and clean themselves of the honey in the hive. Now take the frame the queen is on, pick her off with the fingers, or take a piece of grass and scrape her off the comb down close to the entrance, and see that she goes into the hive. I do not know why it is, but queens seem to find it harder to get into the hive with these "shook" swarms than at any other time. If there is a hole or any thing else in sight that they can crawl under, besides in at the entrance, they seem to be bound to do it.

The editor speaks about shaking *all* the bees from the combs. This, for my locality, would be bad advice on account of loss in brood; still, if some of the youngest brood were lost it would not be much of a loss at this time of the year. I now place the old hive and combs on top of the swarm, and in ten days the bees are again shaken down in front of the swarm. They can be shaken clean now, and combs of sealed brood can be given to nuclei, or used elsewhere, as one wishes. The beauty of the whole thing is, we have the swarming problem under our thumb. Look over the hives once a week during the swarming period. If a colony shows no queen-cells it is safe for another week. If the bees have them under way, shake them, and there you have it.

Speaking about having brood up to the top-bar depends somewhat on the combs. All know, perhaps, that the queen would rather lay in an old black comb than in one that has no cocoons. Now if, during fruit-bloom, we see a colony with an inch or so of honey under the top-bar, that comb is usually lighter-colored than the lower part, which may be black. The bees and queen get in the habit of having brood in the black portion and honey in the light one. Now, if the honey be all uncapped it won't help matters much; but if, say, one comb in the center is scratched, the queen is

quite likely to fill most of the cells with eggs, when in a few days another comb is treated the same way, and put in the center, when the queen will lay in empty cells. We can thus get the queen to keep gradually on the up grade so far as egg-laying is concerned, and brood right under the top-bars, and the bees will rush for the supers when the white flow comes. The very meanest colony to get into the supers is the one with an inch or so of sealed honey under the top-bars, and the time to cure that is during fruit-bloom as above.

Franklinville, N. Y., Aug. 20.

BRUSHED SWARMS BEST FOR COMB HONEY.

Mr. Root:—You ask for reports from any of us who have had experience with the shallow hive and brushed swarms. I have used that method for some years, and consider it the very best for comb honey. My practice is to winter all colonies in double-brood-chamber hives, and, as soon as spring comes, give room for breeding purposes by adding additional shallow hives as long as the bees seem capable of greater development, when they can no longer increase. I brush all the force into a shallow hive placed on the old stand, setting the old stock a little to one side on the swarm. I put two supers of prepared sections, full sheets of foundation, every seven days. I run the young bees from the old stock into the brushed swarm until the close of the honey-flow. After that I have a long slow flow, and I place the several shallow hives together and work them for extracted honey until August, when sumac comes in bloom. I then proceed the same as in the spring. At last, when winter comes, I fumigate with carbon bisulphide and store away until spring.

By this method I have secured over 100 pounds of fine comb honey per colony, besides from 50 to 60 of extracted. The bees never fail to enter the super at once, and in full force, thereby securing rapid work, which is always a requisite to the production of fine comb honey.

In answer to W. T. Cary, page 698, I can say bees often ball a young queen when disturbed. Anger at being worked is the prime cause. Virgins are balled when another queen is nosing around the hive, which they often do when undecided which hive to enter. I have often seen them balled thus, so with me it is no guesswork.

My crop is 7000 pounds from 90 old colonies; increase, 100. I am now running 220 colonies, but prospects are gloomy for any fall honey except honey-dew from plant lice working on the pecan-tree. This is a red-dish honey, and granulates very quickly.

Vigo, Tex., Aug. 31. J. E. CHAMBERS.

BRUSHED-SWARM PLAN DOUBLES THE CROP.

Mr. Root:—As you ask in GLEANINGS for what we know about brushed swarms I will tell you a little. I have practiced the

plan for several years, more or less. What made me take up that plan at first was that swarms would bother me by coming out and going back sometimes several times, so I commenced to use the brushing and shaking process (no jouncing), similar to the Danzenbaker plan. I would move and leave the old brood with enough bees to care for and protect it for five or six days, then brush every last bee in front of the new swarm with one of my double-brushes, set the brood in an empty brood-chamber near by with a cloth over it until the job was finished, then I would take the beeless brood and set it over or under a weak colony according to conditions, and I did the same way with the colonies that were ready to swarm, always piling the beeless brood story after story until I had what I called "towers" scattered over the apiary as high as I dare pile them. I was very particular to have the bottom hive solid and plumb, then pile up until I could reach no more up. They being so heavy they appeared to sit as solid as a brick chimney. Then I would start another, and so on. If I had no more weak colonies I would borrow one from one of the towers. I had no set rules, but just worked the towers according to circumstances, such as the time of season, the kind of flow, etc. I always condensed the whole lot of one tower down into one or two brood-chambers when ready, and placed sections on. You may be sure some of them were monster colonies, and I think they invariably wintered well and gave a good surplus next season. I never fed any sugar nor any thing else (was prejudiced against feeding), and I never had a failure—that is, I always had a medium crop when even the best apiarists around had failures. Perhaps the locality did it. We have had many a good laugh at remarks made by passers-by when they spied the towers. Well, now, I will say that I consider the brushed-swarm plan has doubled our crop of honey under certain conditions some seasons, letting alone the easy way of controlling swarming to a great extent. I did not work the plan on all my bees—only a part of them; the rest were allowed to swarm once, then were treated the same as the others.

Bertha, O.

JOHN HAMMOND.

"BRUSHED" OR "SHOOK" SWARMS.

During past years I have many times brushed and "shook" swarms, but supposed it was a practice that was well known to all bee-keepers of experience. As my apiaries are always run for both comb and extracted honey, I reserve the weaker colonies for the production of extracted, as only good strong ones are of any use in making straight combs and well-filled sections. Often when I notice a comb-honey colony preparing to swarm (starting cells, etc.), I take away the brood, brushing and shaking the bees from the combs. These combs of brood are then used to strengthen

some of the weak colonies being run for extracting. Often the combs of brood are placed in the upper story; and as the brood hatches, the combs are filled with honey. The colony from which they are taken is given empty drawn comb, frames with starters, or frames filled with foundation, as the case may be. I see no reason why this method of forcing swarms is not all right, but I should prefer not to make the swarms until cells are started.

Monroe, Wis. HARRY LATHROP.

WEST-INDIAN PEARLS; OR, TORRID-ZONE DROPS.

Bee-keeping in Those Islands,

BY W. K. MORRISON.

Previous to the eruption St. Vincent was making rapid progress in bee-keeping; in fact, Mr. Powell, the curator of the Botanic Gardens, reported great success. But a dry blanket of hot cinders is not conducive to successful bee-keeping. Unfortunate, if lovely, St. Vincent!

The Montserrat bee-keepers are very much pleased over their success. The local paper waxes quite eloquent over the matter, and it ought to know, as ye editor is a bee-keeper. Commissioner Watkins, who is the beloved governor of the island, takes a keen interest in the industry; and so long as he is at the helm the bee-keepers feel certain of cordial government assistance.

The island of Nevis, the birthplace of Alexander Hamilton, the great American statesman, and the founder of the Republican party, seems to be minus a modern apiary. Nevis was also the home of Mrs. Admiral Nelson, Britannia's naval hero. So distinguished a place ought not to linger on the way to progress. Wake up, Ben Nevis!

Even the lonely island of Saba has got inoculated with the bee fever, and the persevering Dutchmen are now importing Rootville hives. Fancy, gentle reader, landing on a rock-bound coast, and then having to carry your hives up a stone stair of 800 steps! Ought to succeed, eh? Those Dutchmen are audacious enough to produce honey up in their eyrie-like home, carry it down those same steps and ship it to London. They'll do it too.

Sir Alfred Jones, President of the Elder-Dempster Co. lines of steamers, recently bought 500 bottles of Jamaica honey, which he distributed gratis to a large number of prominent persons in the British Isles. Now he has ordered the officers of his steamers to buy only Jamaica honey. As the Elder-Dempster Co. own over 100 large steamers, some of them great passenger ships, it follows that this is important to Jamaica. Some one ought to carry the news to J. P. Morgan & Co., Wall Street, New York.

Grenada is coming to the front as a bee

country. The largest apiary is owned by an Asiatic Indian whose sole instructor was a book on bee-keeping, so it is said.

Last year the Agricultural Society of St. Lucia voted \$160 to assist the formation of a bee-keeping industry. Judging from the results secured elsewhere, St. Lucia ought to get good returns for the money invested. St. Lucia is not only a fine country for agriculture, but one of the most beautiful islands in all the world. It's a gem.

Now that Saba has embarked in apiculture, why should we not hear from Barbuda, Anguila, Anegada, Virgin Gorda, St. Barts, St. Eustatius, and Curacao? and why—oh! why—don't the Bahamas join us? There is no excuse for them.

President Castro, of Venezuela, has just promulgated a new tariff. Among other articles he entirely prohibits the importation of honey. This is done to protect the native bee-keeping industry. Modern bee-hives were first introduced into Venezuela (so it is said) some 12 years ago, by W. K. Morrison, who was engaged from Washington by ex-president Palacio, to initiate the industry. In Columbia, Brazil, and Venezuela, honey from the stingless bees is used considerably by the country folk.

Reports from Jamaica state that more people are taking up the bee industry, and in some localities overstocking is bound to happen ere long, if it hasn't already taken place. This is to be regretted, seeing there are other British colonies equally good where there are practically no bee-keepers as yet. Honduras, for example, with its forests of logwood and mahogany, has as yet hardly made a commencement.

Recently a meeting of the principal bee-keepers of Jamaica decided that the low price of colonial honey was due to insufficient care on the part of the bee-keepers, and it was resolved to adopt ways and means to prevent inferior honey being shipped to England. It was shown that the honey from a few careless ones depressed the value of the whole of the colony's output.

Tobago, Robinson Crusoe's island, is very slow to take up bee-keeping on modern lines. Does it require a Daniel Defoe to arise and make known to the world its bee-keeping capabilities?

What's the matter with Trinidad? It makes no comparison with Jamaica in the business of bee-keeping, though it is known to be a first-rate bee country. The far-famed cacao estates of Ière are all shaded with honey-giving trees, and what is to hinder development? Are the Trinidadians as slow on honey as they are on fruit-growing? or is it that the Jamaicans are more enterprising?

Among the Leeward Islands, Antigua takes the lead, which is no more than its due, seeing it is the seat of government, and it has been the longest at it. The yield is good, and the bouquet fair. It is a dry island—that is to say, its rainfall is light.

RAMBLE 211.

A Trip to the Isle of Pines.

BY RAMBLER.

While on the voyage from New Orleans to Havana I made the acquaintance of a party of Iowa people. In this party were the heads of fifteen families, and a few of the heads had their entire families and the

same desire; and in due time, when there was a let-up in the honey-flow, we two turned our steps southward. We expected to have several bee-men with us; but business matters interfered, and it was finally we two. We were advised by real-estate men and others to take our bicycles, for wheel-riding was practicable on the island, and horse-hire expensive, and therefore we took our wheels.

When leaving Havana by rail we find matters a little peculiar. It is first, second, and third class fare and coaches; but it was not so much in the classes as it was in the *personelle*. For instance, third-class fare for the 30 miles from Havana to Batabano is \$1.04, while for our aristocratic wheels we each had to pay \$1.50.

It is worth while to ride in a third-class car, as there is such a variety of subjects to study—whites, blacks, creoles, a jolly crowd too. Pigs and chickens are carried around by hand so much in Cuba that the matter is regulated on the train. A person is allowed to carry one rooster in a first-class car, and in a third-class car half a dozen chickens and

one pig ditto. A Cuban behind me had two chickens with legs tied. The black man in front of me had something portly in a sack. It might have been a pig. And, just as sure as you live, after all is said and done in the States about the canteen in our army, here was virtually a canteen on the train. Here was a cupboard with an array of bottles, and the lad who dispensed oranges and sandwiches passed the bottle to whoever desired a drink. These people confine their drink mostly to wine, and they do not get into the gutter on that quite



KEENAN'S APIARY.

hired man with them. These people were the brawn and sinew of Northern Iowa. They were anticipating fair climes and good fortune. Verily these farmers, with their high sense of right, are the salt of the earth. They were upon their journey to the Isle of Pines, where an advance party had purchased 20,000 acres of land, and the next thing on the program was to settle that tract and make it produce much fruit where none was produced before.

The reason why these good people chose the Isle of Pines for a colony is that they have an abiding faith that the island will become a portion of the United States. They claim that, according to the treaty of Paris, it is already ceded to the United States. The famous Platt resolution also embodies this in the provisions. But the Cuban convention left the matter open for further consideration. These people are so full of faith that they will be under the stars and stripes that they have named their new colony Columbia.

I became greatly interested in these people; and, finding a couple that had kept bees in Iowa, and were acquainted with GLEANINGS, I resolved to embrace the first opportunity to visit the island.

When I was visiting Mr. Moe he was entertaining the



FOLKSDORF'S HOME AND APIARY.

so disgracefully as do our soldier boys on the stronger liquors.

At Batabano we take a steamer and sail away sixty miles to the Isla de Pinos. The Caribbean Sea here [is] so shallow that we can see the bottom nearly all the way. Here are extensive sponge-fisheries, and there are carloads of them, both large and small, at Batabano. As we approach the "isla" the steamer has to tack here and there between the little tree-covered islands. In this country they are called *keys*; and we finally run up the Santa Fe River and tie up a jucaro (*hoo-kah-ro*). Just around the bend in the river is the new town of Columbia—not a building there. A short distance inland is the town proper; and when we were there Columbia boasted of two houses. The town is on the Rio del Mal Pais (river of the bad country). In spite of the name, this is where our Iowa people have their 20,000 acres. The people were very enthusiastic in the improvement of the country; and before a house had been built, orange-trees had been planted, and were putting forth a nice growth. While the orange seems to be the leading fruit in the minds of the settlers, there are many fruits that can be grown here. There are 5000 acres along the sea-coast, adapted to the growth of coconuts and bananas. This land was in the market at \$5.00 per acre, and Mr. Moe and the Rambler became interested to the amount of ten acres each.

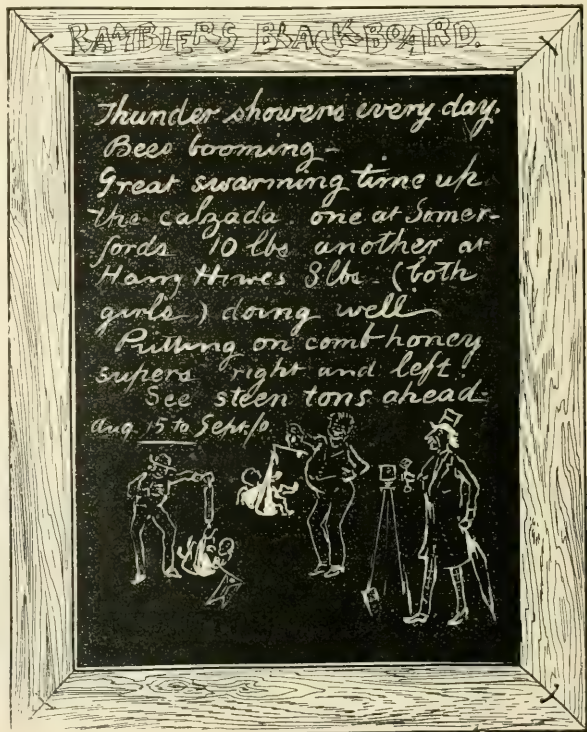
The Iowa people are not the only parties interested in the Isle of Pines. A company of New York capitalists owns over 70,000 acres of land, while Johnson & Durham, real-estate dealers, are interested in another slice of a few thousand acres. Mr. Moe and I were sort o' under the guidance of Mr. Johnson; and in order to join a party for the interior we made but a brief stop at Columbia, and then cut across country five miles to the largest town on the island—Nueva Gerona. We found, as our real-estate men told us, that we could wheel almost anywhere on the Isle of Pines. The soil is entirely different from that on the west end of Cuba.

While waiting for our real-estate men to get under motion we "explored" a little around Nueva Gerona, and found two bee-keepers—Mr. Keenan, with about 30 colonies, and Mr. Folksdorf, with a few more. Mr. Keenan was busy putting in an ice-plant, and was evidently not much interested in bees. Mr. Folksdorf lived on the other side of the bay, and had purchased a caballeria ($33\frac{1}{3}$ acres) of land, and it was such an ideal place for a home that Mr. Moe wanted

to invest there too. I did not know that Mr. Moe was a fisherman until we looked off the bluff into the clear water of the bay, and saw fish a foot or more in length. How his hands itched for a hook, line, and pole! and with these temptations before him every day, and a boat handy, Mr. Folksdorf had never fished there. Comment is unnecessary.

Mr. F.'s bees also looked as though they needed a little more attention. About all of Mr. F.'s energies were being devoted to the improvement of his land and to gardening. I wished to get some idea of the honey resources of the island, and plied Mr. F. with a few questions; but he would invariably get off on to the gardening subject. I gathered, however, that the season was different from the season in Cuba. While up to the time of our visit the harvest was on in Cuba, the bees had just about made a living in the Isle of Pines. We saw but a trace of bellflower, either in Columbia or Nueva Gerona. Mr. F. said the bees gathered honey later from the near-by hills; but as to the flora gathered from, he could not specify. It appeared that no one had been long enough on the isle to test many of its resources; and this is especially the case in reference to honey production.

I herewith present two photos of the small apiaries we found. I would call particular attention to the peculiar shape of the trunk of the palm on Mr. Folksdorf's place. In some locations in Cuba all of the palms have this enlargement.



Mr. F. lives in a very respectable-looking house, and it was partly filled with beehives, a two-frame extractor, and many other indications that the owner had his periods of bee management; and, from appearances, that must have been when the bees absolutely needed it.

When away from Columbia, and with the real-estate men, we felt a little different influence. The latter had land to sell, and were selling it for the money there was in the business.

Our Columbia people also had land to sell; but the promoters were *bona-fide* settlers themselves, and desired more of the American element as settlers, or, in other words, desire to Americanize the Isle of Pines.

THAT NECESSARY EVIL, THE SMOKER.

Some Suggestions and Criticisms.

BY DR. H. N. CROSS.

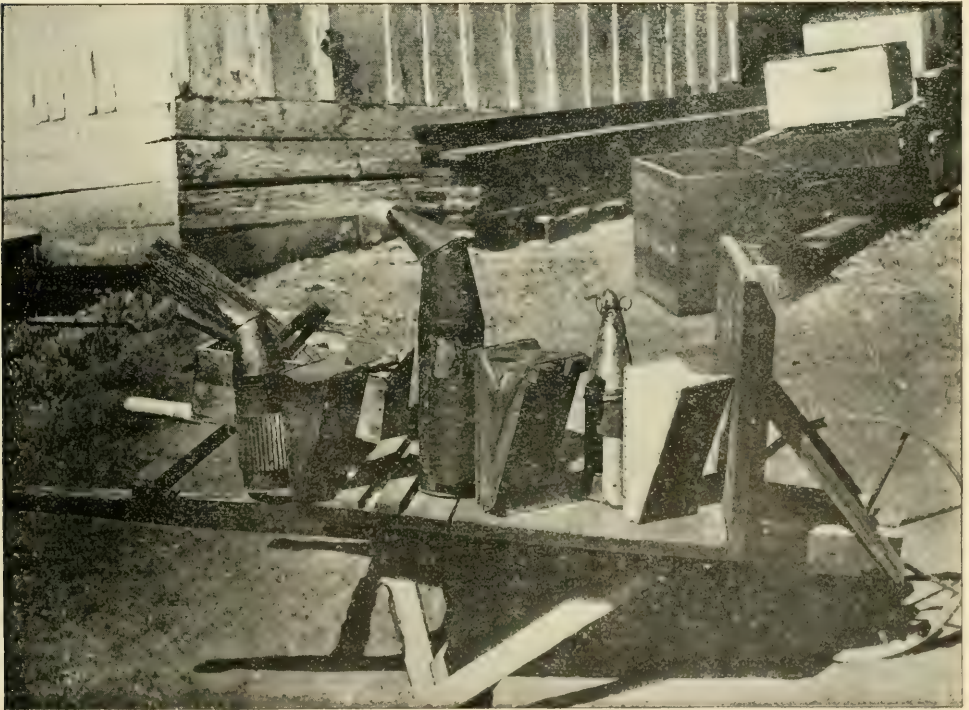
Mr. Root:—Since you so kindly consented to publish my article on stingless bees I am constrained to write you again, this time in the interest of the bee-keeping public, about the most necessary of all bee-keeping evils, the *smoker*—necessary because we never know what moment it may be needed to save our complexions from an onslaught, or to prevent danger from hap-

pening to the bees themselves: an evil, because, no matter how judiciously used, it always causes annoyance, if not actual distress, to our little pets.

Now, after years of using smokers (and all the makes except the lately mentioned clockwork smoker are included) I decided to see if the result of my "repairs" on old makes could not be put together in a new one of my own manufacture. This I succeeded in doing; but before describing it I intend to show the defects of standard makes.

In the first place, every practical apiarist knows that, without prepared fuel, or special fuel, any make of smoker will not hold its fire if left standing for any length of time, with the possible exception of Mr. Bingham's "Smoke Engine." All know, also, that the little Clark cold-blast is suitable for only a few colonies, or for a person who has an abundance of time to keep it going. Its blast, too, is weak; and, in the case of a badly worked-up colony, it would do little good in controlling them or protecting the operator.

One main fault with the Crane and Cornell smokers is that the spring inside the bellows is too strong for nice working; and the spout, being held on with a hinge, oftentimes does not fall properly on the barrel; and if hastily jammed down it will crimp open the barrel, so that it will always leak smoke at that point and never be



CROSS'S SMOKERS AND WHEELBARROW.

a good fit again. The Crane has the additional fault of the valve, which I consider of no particular benefit; but when well crusted with creosote it becomes a nuisance indeed. Its position and manner of fastening make it a bad job at cleaning, and few people would fool with it.

The Bingham "Smoke Engine" I consider the best smoker on the market, but, notwithstanding his claim of its being *perfect*, it is far from that stage, and can be improved very materially. In the first place, in the smokers of Mr. Bingham's manufacture the spring that holds the bellows valve in place is too poorly fastened, being put on with only a small tack. This tack should be of copper, and go clear through the back of the bellows to clinch there, or else the spring should be fastened with a screw. It takes about two weeks of work in a hot California sun to so dry the wood that the tack falls out; and I can assure you it is not a pleasant task to take that bellows to pieces just to fit a little measley tack.

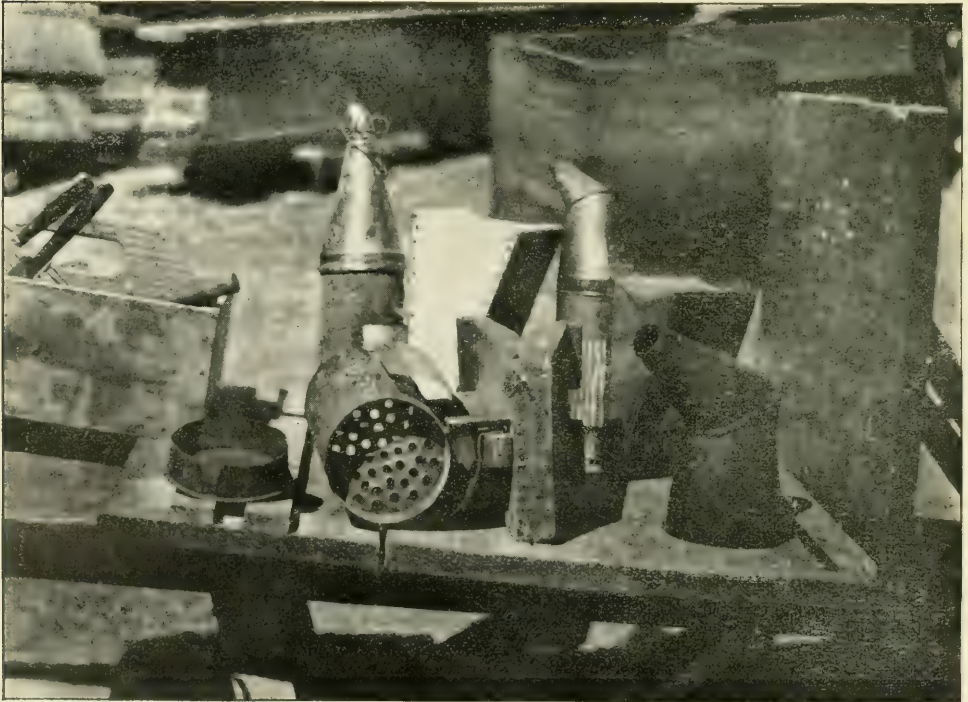
Another fault with this smoker is that the barrel is too short. It should extend at least two inches above the top of the bellows. In lighting, especially if a squirt of coal oil is used to start the fuel, the blaze whips around on the bellows-top, scorching the leather and the wood also. Two inches more of tin would stop that; and, by the way, the Crane and Corneil smokers could

profit by two inches more of tin also, and for the same reason.

Most folks set their smokers on the ground when not using them. I find that all smokers examined have the leather worn off, or nearly so, from the bottom of the bellows. Two large round-headed nails, one on each side of the bottom, would save many a leaky bellows, and render its life much longer.

I discovered these things one at a time; and when my last smoker was about gone up I built one, a description of which will be plain by consulting the cuts.

I took the Bingham as a general pattern, but made the bellows 9 x 6. The barrel I made of common stovepipe iron, 4 x 10, with the perforated grate riveted in place, one inch from the bottom. The bottom, or ash-cup, is, as the picture shows, cup-shaped, detachable, and telescopes inside the barrel. The snout is made like the Crane, but detachable, no hinge, and has a one-inch opening in the top. Now, if the cut is examined the blast-pipe from the bellows and the hole in the barrel are seen to be not in the middle, but are placed considerably on one side. The action of the blast is not only to blow plenty of smoke out of the top, but, forming a sort of vortex inside the ash-pan, no ashes ever accumulate there, but are blown out of the blast-hole, and at right angles with the pipe, so none is ever blown back into the bellows, as sometimes



THE CROSS SMOKER DISSECTED.

happens with the Bingham. In case of burning old scraps of wood with nails in them, the nails that fall through the grate are easily removed by taking off the bottom.

On the bottom of the bellows are two legs, made of heavy nails, so that the leather of the bottom never touches the ground. The sheath of metal attached to the barrel for fastening the bellows to it is made extra heavy, and after months of use it is as firm as when first put on. The top of the bellows has a half-inch strip nailed across both front and back to assist the fingers in carrying or using, and no amount of honey will cause a slip. The height of the smoker, with top on, is such that it balances nicely in the hand over the hive. The spring inside the bellows is of just a nice tension, so that one hand can hold and work it for a long time if necessary, and no cramp in wrist or palm will occur.

This smoker will burn any kind of fuel, from dry grass or leaves to hard wood, shavings, sawdust, or any old thing that is handy; and it does not go out, even if left standing for hours. Just as long as there is any thing left in it to burn, it will stay going. In case of an attack in force, this smoker will send out such dense clouds of pungent smoke, under "forced draft," that the bees quickly conclude they have business in some other quarters, and quit. I am so well pleased with its "stay lit" qualities that I want the smoker-making people to take the hint and put out an instrument for the general benefit of bee-keepers who have no time to lose.

These pictures also show my tool-box, which somebody may like. It is divided into two compartments, the partition making the handle. One compartment holds one sharp knife, one dull knife, one putty-knife, one dull long-handled chisel, one small pair pincers, one small pair wing-clipping scissors, one small level, all in strap loops attached to the side. This compartment also holds one horse-shoeing hammer, with which you may dig in the ground, split wood for fuel, drive or pull nails, etc.; one box of tobacco-stems ground up fine; queen-rearing plug-cups, cages, nails, tacks, etc. The other compartment contains fuel only, cut into right size for using.

The wheelbarrow is of my own make, the slats across the bottom being for clearance of possible burr-combs under supers when bringing to the honey-house.

Dos Mesas, Livermore, Cal.

[It is a difficult matter to get out a smoker that will suit every one. The conditions and notions of individuals vary so greatly that manufacturers have to strike a golden mean. The large smoker that you have made would be too large for the majority of bee-keepers—too heavy and bulky. Such a smoker having a removable rear end would also have its objections, for the smoke would be inclined to leak out at the back. The tendency now in the construc-

tion of smokers is to reduce weight and increase the capacity of the fuel-chamber. In doing this it is not necessary to make a great big roomy nozzle such as you have made, for it is not practicable to store fuel in the nozzle. The nozzle should be reduced in size and in length, and yet should be capable of deflecting the smoke at an angle.

We invite criticisms, and would say, for the benefit of our friends, that we are not only reducing the weight of our smokers, but are otherwise improving them.—Ed.]

"FARTHEST SOUTH" APIARY.

An Interesting Account of a Chinese Lady who Owns 400 Colonies; Her Experience with the Danzenbaker Hive.

BY SOJOURNER.

"Down in Chaguanas," in the mind's eye of a Trinidadian, is somewhat as Nazareth used to be in the olden time; but it contains one thing that is uncommon in this part of the world—a good-sized apiary which, if not now run on entirely up-to-date lines, bids fair to become so, and has already made a little stir in the little world of Trinidad.

When I made up my mind to take a spin of nearly 25 miles to see this apiary, there were some misgivings in my mind whether the way was good all along; but as mile after mile of beautiful macadam road unfolded its sinuosity I thought how groundless were my fears, and how prone we are at times to conjure up unpleasant vistas of what is in store for us. The "bike" slipped along click, click, click; only the East-Indian coolies who were traveling in the same direction required a tinkle from the bell now and then to warn them of the approach of the silent steed, and it is most extraordinary how these people will walk and sleep at the same time; but, what is far more interesting is the attitude of the African toward the cyclist as he journeys along. He may see you coming in the opposite direction half a mile off, but you must ring your bell as you approach him (or her for it matters not which sex). They like to hear the bell. Two tropical showers soaked me through; but this only served to wash the road clean. Any way, I found out the place of C. P. Lee, for I was doubtful all the while about the proper designation of the owner's name. Several persons told me the "place" belonged to Peter Lee; and as the bike bowled onward I mentally asked what the *C* stood for. The mystery was soon solved. The name was Caroline P. Lee, and so the proprietress was a lady—not a common man.

There is something more than common about this lady, as my readers will see by the picture. Her home land is the Celestial Empire—quite a distinction for a *modern* bee-keeper. I do not recollect seeing the portrait of a Chinese lady bee-keeper in any bee-journal. It will be perceived

Mrs. Lee has what would be termed by the society journals "an interesting personality." Americans are familiar enough with the washee-washee Chinese; but they do not often see the better types, and the result is a good deal of pure prejudice. In the West Indies I have uniformly found the Chinese very clever, and very honest and hard working; and, what may seem odd to many of your readers, very clean. They are a great race; and if ever they take to bee-keeping they will, without fail, be found at the top.

Mrs. Lee's apiary is located just behind her store, for she is a lady of many accomplishments. And Mr. Lee—where was he? Well, he is a busy man. He is either selling ham or sugar, or making two-cent "snowballs." Sometimes he snatches a



MRS. CAROLINE P. LEE.

few minutes to help with the bees; but from what I saw his time is very much occupied, and it is passing strange how some persons manage to look after work enough for two men.

The 400 colonies are located in a small lot behind the store. The space is so limited that the hives are tiered three high, and ranged close together. This does not seem to do any harm, for, though my visit occurred in the middle of the rainy season, Mrs. Lee's bees were all in good condition. A good many "hives" were simply kerosene-boxes, the favorite West-Indian hive. Some were in Danzenbaker hives arranged for comb honey. Here we have the very latest specimen of apicultural architecture brought into juxtaposition with the most primitive. Mrs. Lee has secured some beautiful comb honey with the Danzenbaker, and gained

the first prize for it at the Trinidad Exhibition. In fact, the honey was so good that the judges thought it must be spurious—made on a machine. It was too accurate for their eyes; besides, they asked themselves, "Can any thing good come from Chaguanas?" Inquiries were made, however, and it is found that the honey-comb was made by honey-bees, and the prize was awarded. Score one for the Danzenbaker hive. It should be noted that, in the West Indies, it is the rule to have the judging of agricultural products done by persons whose business it is to preach, plead, or write. It would be "bad form" for me to say they knew little about agriculture. The reader can form his opinions about that. "All's well that ends well," and Mrs. Lee has the diploma for three prizes on wax, honey, and sections. The sole guide for this apiary is the A B C of Bee Culture, published out West somewhere near Lake Erie, by a man named Root.

Mrs. Lee had no name for the apiary, so I dubbed it at once "The Farthest South," for, so far as known, the only apiaries nearer the equator are small and of little importance.

Trinidad is in South America, but it is set down by its inhabitants as in the West Indies—to be very particular, the British West Indies. It is ten degrees north of the equator, and, of course, is in the torrid zone. Further south, in British Guiana, there are a few bee-keepers—none of them very extensively engaged however.

The Lees are hospitable folks, and the writer had a pleasant time with the family, and perhaps my long run had something to do with my appetite; at any rate I felt at peace with the world after partaking of "breakfast." In this part of the hemisphere breakfast is served any where between 11 A. M. and 1 P. M.

How terms get changed! Is it the vertical sun that does it? or is human nature to be different? After discussing the various types of hives, etc., I bestrode my cycle homeward, a happier, wiser, and tired man.

[We are glad to introduce this interesting lady to our readers, and hope we may have the great privilege of hearing from her direct.—ED.]

THE UPS AND DOWNS OF A BEGINNER.

Alfalfa in the South a Yields of Honey; Laying Workers, etc.

BY TAR HEEL.

I bought me a copy of the A B C of Bee Culture, and subscribed for GLEANINGS. The next spring I sent to The Root Co. for an eight-frame hive, section boxes, foundation, smoker, gloves, bee-veil, etc., and since that time I have been moving slowly upward. I liked the eight-frame hive very well, and made me twelve more. Last year I decided to try the Danz., and ordered one,

There were some features about the hive that I liked and others I did not; so, after considerable thought, I got me up a box after my own notion. I send you some snap shots I helped take recently. They are dif-

buckwheat. I have some buckwheat just fixing to bloom now, purchased from our friend J. M. Jenkins, Wetumpka, Ala.

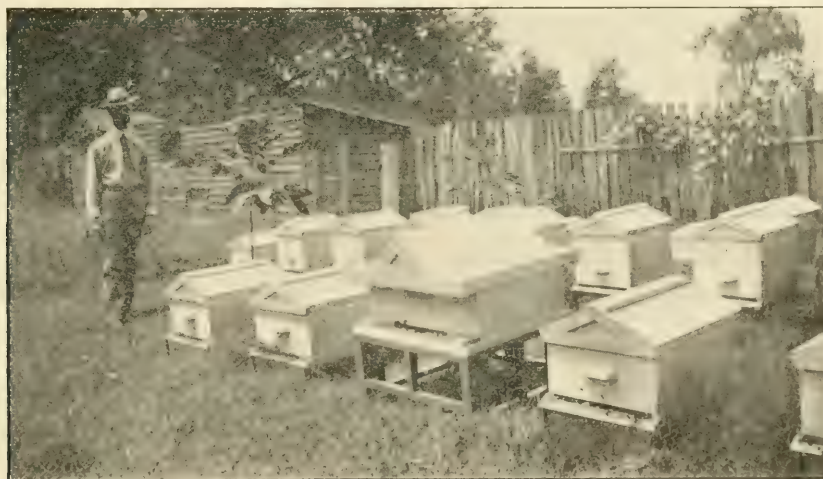
By the way, speaking about alfalfa, I planted about $\frac{1}{4}$ acre year before last for



TAR-HEEL APIARY.

ferent views of my yard, which contains 32 colonies. I live only a quarter of a mile from the center of the city; at the left is the city cemetery. To the north, about a mile away, is Oakwood Cemetery, and about the

the bees. Last year it grew nicely and bloomed well, but the bees paid no attention to it. I decided to let it remain a year longer to test it thoroughly. This spring the bees worked on it well—so much so that



TAR-HEEL APIARY (CLOSE VIEW).

same distance east is the Federal Graveyard, and beyond that distance north, south, and east is the open country. I have a very good natural field. My lot is about an acre and a half. Besides my garden I plant crimson clover, white clover, and

the man who cut it (it was cut while in bloom) along toward the last threatened to give up the job, as he said it was hard to tell which were in possession—he or the bees. So it is safe to say alfalfa has produced honey as far east as North Carolina,

In regard to worker bees laying, I will tell you of an experience I had of that kind recently. Owing to an oversight on my part a box was allowed to remain queenless until this state of affairs took place:

I had introduced a queen, but it seems the bees had not accepted her, and, later on, in looking in the box to see how she was getting on I found this state of affairs. I immediately went to my A B C to find out what to do, but for once got no satisfaction, as your book said a queen introduced at this stage will not be accepted, or words to that effect. Well, what was I to do? I thought over the matter for half a day, and finally struck on a plan that proved a success; and for the benefit of some brother who may happen to have the same bad luck I will give it. The box that stood next to this one was a pretty strong one. I took all the frames from the queenless box but four. I brushed the bees from the others and put them away. The four remaining ones I transferred to the strong box (bees and all), and lifted four frames from that box and put them in the empty box. I then introduced a queen on these frames, which the bees accepted, and when the queen began to lay I began to supply the box with the empty combs I had put away, and soon the box was built up, and is now doing all right. What became of the laying worker I am unable to say, as she ceased her pranks very shortly after being transferred to the strong colony.

I see some one wished to know in a recent number of GLEANINGS how to prevent the bees from crowding the queen in the brood-chamber, in running for comb honey. I was troubled a great deal in that way at first, but have learned how to stop it. If I find the box is heavy, and little honey going into the super, I at once know there is something wrong below. I lift the super off, take out the side frames (sometimes I find two or more on each side pretty well filled), take them to my extractor (a home-made machine), extract the honey, and return them to the box, but not to the sides of the box. I lift a frame or two, as the case may be, from the center of the box containing brood, and put these on the outside and the empty frame in the center of the box. The queen at once fills these empty combs with eggs; and as the bees can not store on the side ones, they at once begin "toting" the honey above, where you can take it off at your pleasure. I tell you a fellow has to work his brains (if he has any) as well as his hands, to make a success with bees.

I agree with you, brother, in regard to the yellow bees. I have introduced a few such queens, but had to kill them, as their bees did nothing but rob the whole season I had them. I have tried the three-banded and five-banded also, but like the leather-colored strain the best, and breed nothing else.

This has not been a good honey year with us, but I have taken as much as 80 lbs. from some of my colonies, while the average

honey-producers around here have taken comparatively nothing.

Raleigh, N. C., Aug. 22.



ADDITIONAL PROOF THAT BEES HAVE NOTHING TO DO WITH PEAR-BLIGHT.

It appears strange that an intelligent community of pear-growers should accuse honey-bees of disseminating the blight. That an all-wise Creator should create so useful an insect, and let it be the means of spreading disease and death while pollinizing the bloom to insure the setting of fruit, is incredible. If bees spread the disease, why do trees die with it that have never bloomed?

About 25 years ago every pear-tree in this vicinity blighted, and many died. One morning I was admiring a fine pear-tree. Its leaves were shiny and green. At noon I was surprised to see its branches black and withering. No one knew whence the blight came or whither it went; for, like an Arab, it silently folded its tent and departed, and has not appeared here since. We had a Flemish Beauty pear-tree that was killed to the ground with blight; but a sprout came up above the graft, and bore four bushels of lovely pears this year.

About ten years ago, while traveling through Northwest Florida, I greatly admired the pear-orchards—row upon row of fine trees, without a break. The blight came and destroyed them. A grower told the writer that, whether trees were cultivated or uncultivated, mulched or irrigated, they died all the same. I had in Florida a row of four Leconte pear-trees and one Keiffer. The Lecontes were blighted, and killed to the ground. Two sent up very strong shoots. The others were entirely dead. I had fertilized these trees abundantly, and they made great growth, and bore heavily—that is, the Lecontes; but the Keiffer grew slowly, and bore heavily. If the bees carry blight, why didn't they carry it from the Lecontes to the Keiffers?

In the future I'll not cultivate nor disturb the soil under my pear-trees, for I've noticed trees growing in yards, that were tramped around, never cultivated or fertilized, didn't blight. I may spread under them ashes and lime, or a coating of decayed leaves, and turn them over to the care of the Almighty.

I was in one of the city's parks last week, and I never saw such a wealth of bloom, of every color imaginable. I looked them all over carefully, but never found a honey-bee. Yesterday on my way to church I saw bees

working upon dandelions. In this locality there will be but little surplus honey. Colonies will have plenty of stores for winter without feeding. MRS. L. HARRISON.
Peoria, Ill.

SUCCESSFUL USE OF PROPOLIZED CLOTH IN SMOKERS; NO DRONE COMB BUILT FROM STARTERS IF COLONY HAS A YOUNG QUEEN.

On page 739 Mrs. L. Harrison sounds a note of warning against using propolized cloth in smokers. I have been using it for over twenty years, when I could get it, and have yet to see the first case of robbing resulting from its use. There is, however, danger if the cloth, as is sometimes the case, has considerable wax on it, that, when burning, may promote robbing.

S. Farrington's question, No. 4, page 741, may be safely answered in the negative if the starters are given to a swarm with a young queen. I have had numbers of swarms that had only wired frames with starters given them. The frames were built out on the wires so evenly that they could not have been told from combs built from full sheets of foundation, and not more store comb than would be found if full sheets had been given. H. FITZ HART.

Wetumpka, Ala.

EUCALYPTUS; AN ANSWER TO M. P. WEEKS' QUESTION, PAGE 744.

The *Eucalyptus Globulus* is a large tree, a native of Australia. In 1860 M. Ramel induced the Prefect of the Seine to cultivate it on a large scale in Paris, and since that time it has been largely introduced into Europe, Algeria, South Africa, and Southern California. In some of the locations planted, forests are growing and spreading. It is stated that it will absorb and evaporate ten times its weight of water in 24 hours, and numerous examples are given in which swamps in Europe and Algeria have been rapidly converted into dry ground. Its growth is about five times as great as that of our ordinary trees.

I do not think it possible to grow it in Western Colorado, as the government tried to reclaim the Potomac flats with it; but it would not grow in this latitude, it being too cold. J. R. HAGAN.

Washington, D. C.

GETTING ALKALI OUT OF THE SOIL; CAN IT BE DONE?

In your Notes of Travel in California you speak of alkali land. How would it do to lay drain pipes in such soils, flood the ground as in irrigating, and leach out or wash out the alkali? Has this ever been tried? What would this cost per acre? Covina, Cal. C. WANTY.

[I do not know whether the plan you propose would work or not, but I feel doubtful. There is so much alkali in the hardpan beneath the top soil that water serves only to

bring it to the surface. I know that alkali patches in Nebraska, at least in some parts of it, have been redeemed by sowing alfalfa on them. If it will once take root the roots will bore through the hardpan, and when heavy rains come the holes will allow the excess of alkali to drain out. But the alkali in Nebraska is quite different from that in Central California, I understand.

Perhaps some friend located in the alkali regions of California will be kind enough to answer our correspondent.—ED.]

A HOUSE-APIARY HALF UNDER GROUND.

I contemplate building a home in a suburb of Chicago with the view of placing an apiary in the cellar, of brick, 21x24 ft. by 3 ft. above and 3 ft. below ground. I have read your article in the A B C under "House Apiary." Please advise me as to the practicability of my idea, and give me any further suggestion you deem advisable. Chicago, Ill.

W. G. RICE.

[I would not advise putting a house apiary partly under ground, as it would make the room for bees too cool and damp during the summer. Your better way would be to put the bees in a special building above ground; or, perhaps, better still, put them in the back yard provided you have room for them. If you have neither room for the building nor for a little bee-yard, try the underground or half-underground house-apiary, and let us know how you succeed.—ED.]

CONDITION OF HONEY CROP IN KANSAS.

With us the crop is, from present indications, only moderate—not so large as last year. My heaviest yield so far is 75 lbs. for a colony, so you see we have nothing to boast of. The last crop of alfalfa is just in bloom, and the fall flowers are coming on, so there may yet be some increase. The other crops of alfalfa yielded very little honey because of too much rain. Bees are doing well. The hives are full of brood and bees, and, with good weather, would make a good showing.

CHAS. L. SIMMONS.

Strong City, Kan., Aug. 29.

BEEES NOT WORKING ON CATNIP IN WISCONSIN.

No season here for honey. My crop is about 1500 lbs. from 100 stands.

Since reading Dr. Gandy's article I have been watching the wild catnip here, and have failed to find any thing but bumblebees working on it. C. A. THOMPSON.

Downing, Wis., Sept. 5.

J. W. UTTER'S YIELD IN DANZ. SECTIONS.

I have taken 3500 boxes of honey in nice white Danzenbaker boxes. I had 100 hives of bees, now 200. The bees are gathering honey now, being mostly from buckwheat, heartsease, wild flower, and goldenrod.

J. WISNER UTTER.

Amity, N. Y., Aug. 22.

SCHAEFFLE'S ROBBER-TRAP.

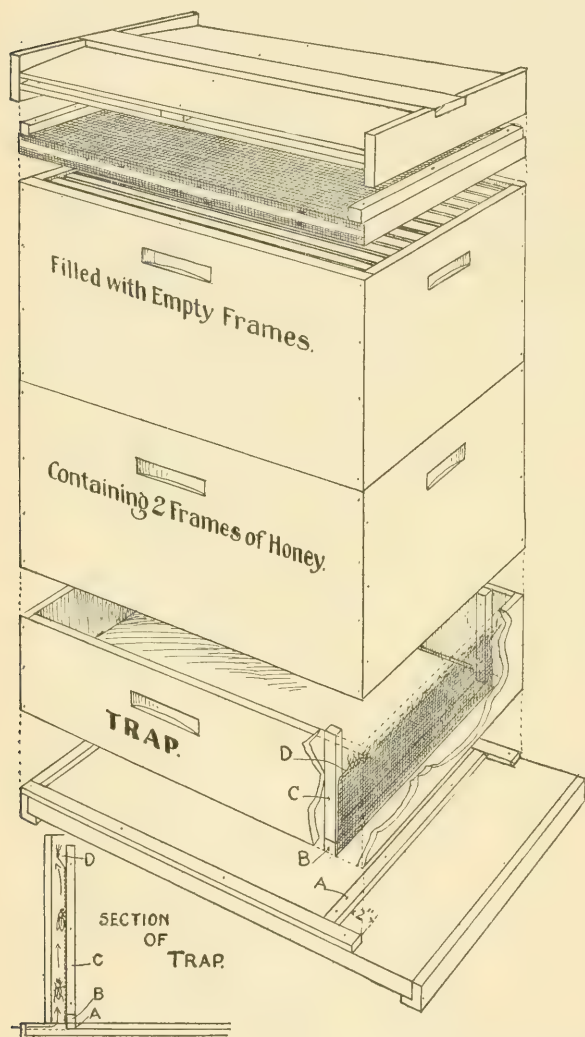
July came in very cold (most unusual). This stopped the flow of nectar, and before I had thought of it the bees were robbing like fury. As a rule robbers attack the weakest hives; but this time they reversed the order of exercises and attacked the big strong double-decker ten-frame hives. I tried the usual remedies, contracting the

grass. This set them to thinking, but they soon got over their aversion to it, and crowded down behind it. As the epidemic was spreading, and the robbers stinging every one who came near, I tried the plan of transposing; but this simply made one hive more of robbers, as they both went at it. Then I sprinkled flour over the robbers, and tracked them home. I sulphured the

strongest hives, thinking this would weaken them in numbers and allow the bees being robbed to stand them off; but others took their place. I next tried McIntyre's robber-trap; but robbers are suspicious, and I caged only about fifty. I then went at it to devise a trap that the robbers would enter, and I think I have it worked out to a success. I took a bottom-board and bored a two-inch hole in the center. This I covered over with screen cloth. The object of the hole was to have an opening where sulphur fumes could be sent up, should I conclude to execute the robbers. Across the front of the bottom-board, level with the side strips, and about $\frac{1}{2}$ inch back from the entrance, I nailed a cross-piece that came up flush with the side-strips. I then took a half-super and nailed into the front corners a $\frac{1}{4}$ -inch strip. Across the bottom I nailed a strip $\frac{1}{2} \times 1$ inch. To the front edge of this strip I tacked a piece of wire screen. This wire extended up to within $\frac{1}{2}$ inch of the top of the super, and was tacked to the strips on the sides. The top of the wire cloth I raveled out for an inch. Over this trap I placed a hive with two frames containing honey, and over this a hive with empty combs, and on top of this a frame two inches deep, covered on both sides with screen cloth (to prevent the bees passing out the honey as per McIntyre's instructions). On top of this frame I nailed an inch strip across one end, so that there would be an inch space between the screen and the cover.

When the bees got beyond all control it was only necessary to pick up the hive that was being robbed, carry it into the honey-house, and in its place set the trap. As the trap's entrance was the full width of the hive, and at the same place, the bees entered without hesitation, ran up inside on to the combs, and

then, attracted by the light, they passed directly up into the upper hive. The bees in the honey-house were allowed to remain there until early the following morning,



A is a strip of wood filling the whole bee-space, and level with the other sides of bottom-board, but placed two inches back from entrance; B, an inch strip extending across trap or super, level with bottom A in position to rest on strip A. C is a strip resting and flush with B, but tacked to each end of super or trap. Wire cloth is to be tacked to B and C, thus excluding bees from the rest of the super. At D the wire cloth is bent forward and frayed out at end; cloth extends to about an inch of top of super (trap); arrows show passage of bees.

entrance, placing, not a handful, but an armful of grass in front of the entrance, keeping it wet, etc. Nothing checked them. In desperation I poured coal oil over the

when they were carried back to their old stand, the entrance narrowed down, the bees stirred up well, and they successfully stood off the robbers. And the robbers? Well, I had my choice of brimstoning the lot or letting the hairless rascals go, and I did let them go at dusk. The next day the weather turned suddenly very hot, and the bees had all the employment they needed in collecting the nectar of the flowers, and the robbing ceased.

Once robbers get the mastery, the best thing I find to do is to close the entrance entirely and place the hive in a cool cellar for three days, and then set them back in the evening, giving them an entrance one bee wide. But once robbers have had full possession, give them the hive to clean out; for if they are stopped they will attack the adjoining hives and rob a number of them. Robbing is the most provoking experience in bee-keeping. You feel as though you wanted to destroy the robbers by spraying them with coal oil. E. H. SCHAEFFLE.

Murphys, Cal., July 12.

THE HONEY MARKET IN GLEANINGS.

1. Are prices on first page of GLEANINGS supposed to be such as are paid by the different buyers to the producers, or are they prices the buyers sell at?

2. When is the best time to double up colonies—fall or spring? What is done with brood in hive to be made vacant? Last, but not least, how are combs to be kept secure from the moth-worms in hives made vacant?

Ogdensburg, N. Y.

D. H.

[1. Prices on the first page of GLEANINGS are *wholesale*, or the price the commission man is supposed to sell at, and from which he deducts his five or ten per cent commission. The commission man is the so-called "middle man," or distributing agent. The producer ships his product to him, and he in turn sells it to the local grocers or local trade, and they sell it at retail.

2. The best time to double up colonies is in the fall. At that season of the year there will be very little brood, and what there is can be put in the hive containing the bees united with some other.

Combs can be kept secure from moth-worms by leaving them in the empty hives outdoors where they will freeze. If you were located in the South you might have to put them in a tight box, hive, or room.—Ed.]

SNUFFING SMOKE DOWN INTO THE SUPER TO GET BEES OUT.

Why, friend Root, you have missed the points of my article on page 729 entirely, for I had no thought of claiming Mr. Coggs shall's good method of driving bees down out of the super, and I repeated the process lest some one might have forgotten it. Some prefer the smoke-box, but neither one is mine. Here is the important point or points that you have entirely overlooked: Removing the combs from the super rapidly while the bees are going down, in such a

way as not to arouse their anger in the least, and of closing up the hive while all is peaceful inside and out; for the bees remaining on the combs outside, and which brush off after the hive is closed, are as peaceful and submissive as lambs.

Surely you are mistaken when you say that my method of getting bees out of supers is just the same as that used successfully by Mr. W. L. Coggs shall. Here is the great difference: Mr. Coggs shall brushes the bees off the combs back into the hive as he lifts them out one by one, and of course many bees are brushed off more than once, which stirs up their rage to the highest pitch. The delay caused by brushing allows the bees to return to the super before the hive is closed; and finding their home violated, and meeting bruised and angry bees, they rush to their defense. Can you wonder, as you express it on page 380 of the same A B C book, that the air may be filled with mad stinging bees?

S. T. PETTIT.

[If you could see Mr. Coggs shall or his men get the bees out of the extracting-combs; be right with them in their yard, and watch them as I did while they work, I think you would conclude there was no great difference between the plan you describe and the plan they use. I admit there a slight difference, and it is this: Coggs shall generally shakes some of his combs back into the super; but the bees thus shaken do not, as you suppose, crawl back on the other combs, to be again shaken, but stamped with the crowd on through the lower set of combs, which are not disturbed. You shake all of the combs, except the last one, in front of the entrance.

Mr. Coggs shall follows no invariable rule, as I discovered after having watched his men. Sometimes the flopping of the cloth in connection with the smoker would drive nearly all the bees off the combs down into the brood-nest nest below, leaving only a very few on the frames. These are brushed off outside of the hive. Then the two plans are precisely alike. Blacks or hybrids will stampede downward—not in anger but in confusion. Sometimes the bees would not go down from the smoke; then it became necessary to shake or brush each individual comb. In this case the two plans would differ; but I do not believe there would be more angry bees in one case than in the other. But I distinctly remember seeing Coggs shall's men drive the bees out of some supers by flopping the cloth and smoking, and not having to shake a *single comb*, either in the super or in front of the entrance. Taking it all in all, I do not see that your plan differs greatly, either in method or results, from that employed by Mr. Coggs shall.—Ed.]

SHORT BUT TO THE POINT.

I have shook (shaken or shaken) about 50 swarms, and it was very satisfactory indeed.

J. W. FERREE.

Los Angeles, Cal.



Remember the sabbath day, to keep it holy.—Ex. 20:8.

And he said unto them, What man shall there be among you, that shall have one sheep, and if it fall into a pit on the sabbath day, will he not lay hold on it and lift it out?—MATT. 12:11.

Mr. A. I. Root:—I was surprised—yes, dumbfounded—to read in GLEANINGS of April 15 of your laboring on the sabbath (the Lord's holy day). Do you believe in and uphold Sunday work? and what religious denomination are you if you do? Perhaps we Easterners are old-fashioned and out of date in not upholding such things.

P. S.—You can answer if you prefer in GLEANINGS, and not mention my name. I took great interest in the Home talks, but I must confess that that article knocked all faith and interest out of them. B.

I presume the above letter was called forth because I mentioned last spring that, after having labored hard all the forenoon to start the Sunday-school going, I went over to friend Hilbert's sugar-camp to get my dinner, and after dinner Alice and I took two dippers and dipped sap from the pails that were running over into other pails that were not full. By doing this I saved a lot of hard work for the teams. Our friend who writes this letter comes out pretty square-footed; and in his closing paragraph he says that act "knocked all faith and interest out of" Home talks.

I should be very sorry to find myself among those defending Sunday work; but, on the other hand, may God help me to avoid spoiling my influence with the great wide world by taking the stand that some good people do in regard to this question about keeping the sabbath, especially where there are so many differences of opinion. The Bible says, "Remember the sabbath day, to keep it holy;" but it does not lay down a set of rules as to what shall or shall not be done on that day in order to keep it holy. I am inclined to think that God wishes each and every one of us to strive to keep the day holy, according to the dictates of our own conscience; and of course it is our business to see that we have an *enlightened* conscience. The Savior repeatedly reproved the Pharisees for their silly notions in regard to the observance of the sabbath. For instance, at the beginning of that 11th chapter of Matthew, from which I have taken my second text, his followers were severely criticised for plucking ears of corn, as the Bible expresses it, when they were hungry, on the sabbath. The Savior rebukes the critics. He tells us, in the language of our text, that it is *right* to do certain kinds of work on the sabbath. My understanding of the text is that the sheep was to be taken out of the pit on the sabbath because it was valuable property. There are people who are not quite willing to agree to this, and say it was because the animal would be suffering; and that it is always right to relieve suffering on the sab-

bath, even if it is only a dumb brute that is suffering. There may be differences of opinion in regard to this. The whole question is one of interest and importance to bee-keepers. It has been discussed many times in this journal during the past thirty years. I believe most bee-keepers think it right to hive a swarm that comes out on Sunday; and it has been suggested that Sunday seems to be a favorite day with the bees to swarm. If I remember correctly, there are a few who say they would let them be lost rather than to be seen working on that day. I think, however, these few would be considered somewhat cranky. Where one owns only a few hives it is not a matter of so much importance; but when we get up to forty or fifty, or a hundred or more, good business management would indicate that somebody should stay in the apiary during swarming-time, at least through the middle of the day, on Sunday. We have for years employed somebody to do this; and I hardly think our friend who writes this letter would say we were wrong. Then the question comes up, "How much work shall this hired man do?" I would tell him to sit still and read some good book or religious paper unless a swarm came out that rendered it necessary for him to do some work. The man who really desires to keep the day holy has, of course, every thing provided—hives, stands, etc., so the swarm can be cared for with the least possible work, in the same way that the good Christian housewife would make preparations for the Sunday dinner so that just as little work as possible may be done on Sunday.

Now, there are nice questions that we might take up in regard to the care of milk, delivering it to customers, managing cheese-factories, and no end of things connected with farm work and rural industries; but I hardly think it will be worth while. Years ago there was a big storm during divine service. A large tree fell across the road, not only preventing people getting home from church, but it broke down the fences on one side, and let out a lot of cattle, and broke the fences down on the opposite side so as to let the cattle into the cornfield. What would the writer of the letter above have advised in this case? I am sure I do not exactly know. One of the oldest and most strict deacons in our church got a crosscut saw and helped saw out a log so teams could get by. Others got the cattle out of the corn and fixed up the fences. You see there was quite a little work done on Sunday, and hard work too. I suppose some might have taken the ground that it was not really necessary work—the teams could have gone around and gone home by a roundabout way. Come to think of it, this would have been more work, for the *horses* at least. The cattle would have damaged the corn, and perhaps injured themselves.

Well, every farmer knows, even if I do not mention it, that there are cases coming

up continually where property is going to waste unless the owner turns out and works. Floods and storms injure crops that may be saved by a certain amount of work. Yes, I know, dear friends, that if we grant that it is right to work on Sunday to save money we may excuse a man for getting in his hay, and even go further. I have seen a man running his mower on Sunday because it was the first good day they had had to work for some time. I certainly would not think of excusing him for doing things like that; and I do not believe such a man will be prospered in the end. When I gathered that sap on Sunday there was an unusual run. Mr. Hilbert had been up all night before; in fact, he was so used up for want of sleep that he came pretty near being cross that afternoon. His helpers did not very much want to work—that is, the most of them—and he was urging them to do what they could to save the sap that was rapidly going to waste from many hundreds of trees. He is a man who does not work on Sunday unless something extraordinary demands it. In order to avoid things of this kind he has a large cement cistern made to hold the sap. But this cistern was full, and every thing that would hold sap was full. By working hard, however, until the middle of the afternoon on Sunday, we got ahead so no more sap went to waste, and all hands went home to take a rest, and I hope many of them in order that they might attend the evening service at the church.*

Now, there are ever so many differences of opinion, even among devoted Christians, as to how *much* work we should do on Sunday to save property. We must milk the cows, and we must feed the domestic animals. If the weather happens to be very warm where milk is produced in large quantities, it must be cared for to prevent spoiling. Sometimes this can be done at home, and in other cases the milk must be carried to the trains; and to do this the trains must run on Sunday. I presume the friends are all very well aware that I very emphatically object to Sunday trains and Sunday travel. Electric cars, so far as I know, all run on Sunday. A near relative of ours comes to church Sundays by the electric cars when she could not very

well get there in any other way. Expending a nickel to go and another to return is very much less work than to get up a horse and give the horse the necessary care. She has sold her horse since the electric cars began to pass by her home. Now, I am not defending even electric cars on Sunday. With the light I have on the matter, if I owned these cars they would stand still from 12 o'clock Saturday night till 12 o'clock Sunday night; but I do not feel like criticising my cousin, and telling her she had better stay at home when the cars pass right by her door. I really do not know just what I would do under the circumstances. I should prefer to go on foot if only myself were to be considered. If I were pretty sure some of my neighbors would say, "There goes that cranky old fellow on foot to church, when he could ride on the cars for just a nickel—I don't think much of such religion," perhaps I should consider it the lesser of two evils to ride in the car. It might depend on the company I usually meet on that car. If they were mostly Christian people going to church, perhaps I ought to decide it was a new way of *lessening* Sunday labor. There are many new questions just now coming up where we can not well decide until we see the outcome. "By their fruits ye shall know them."

There is another thing, dear friend (by the way, I wish you had not forbidden me using your name), it is very hard work indeed for me just now to feel well and have my natural enthusiasm unless I have some brisk muscular exercise every day of my life. For me to sit down and read even good books all day Sunday, or, say, all the time when not at church, would not only be bad for me physically, but I fear it would hurt me spiritually. I must get outdoors and ramble around. I think God *wants* me to do so, and I meet other people more or less on Sunday. There are some kinds of Sunday visiting that are all right, and there are some which my conscience tells me are pretty much all wrong. If I visit a neighbor and have a long talk with him in regard to standing out before the world for Christ Jesus, and joining that little church over among the hills, I feel happy and joyous—ever so much better than if I had stayed at home and read the *Sunday School Times* or my Bible—that is, if I tried to read them all the time. I do read them a great part of every Sunday—oftentimes commencing my reading at daylight. If, however, I should visit this same neighbor, or some other one, and look over his potatoes and peach-trees, and find out all I could about his methods, my conscience would trouble me. A few days ago a stalwart young man in my Sunday-school class—one whom I have already learned to love and respect—said to me, as the school was closing, "Mr. Root, I should like to go over to your place this afternoon and have a little talk with you if you would not think it any thing out of the way." I told him I should be glad to see him, and to come along by

*Is it not possible—nay, is it not *likely*—that, with my assistance for a short time with the dippers, I helped them to get things in shape so the Sunday work might stop a little earlier than it would have been stopped otherwise—that is, by going around with teams and emptying *all* the sap from the pails that were running over as well as those that were not full? What I had in mind was to turn in and help so that their Sunday work might be stopped sooner, so they would have time to go home, and, as I have said, get ready for church. I had hoped that my presence and influence might induce some of them to attend the services who would not have done so otherwise. They did not know I was in the neighborhood, for I got in the Saturday night before as you may remember, by some very hard work on my wheel long after dark; and I took this long hard ride after dark with the idea in view of getting where I could remember the sabbath day, to keep it holy; and I still had this idea in mind when I gathered the sap with the tin dippers. If I made a mistake I believe God's Holy Spirit will point it out to me.

all means. I knew he was just starting in bee-keeping, and I thought he might want to talk about bees; but my conscience was clear for all that. We walked around through the woods, and watched the bees at work, and talked on a variety of subjects. He used to live near our place, and knew all about the springs in the vicinity. He told me some things about these I did not know. All together we had a very pleasant talk or visit, and I felt glad to have started a friendship with such a young man. Now, dear friends, when I went to a long seat full of young men with the paper in my hand I mentioned in our last issue, asking them to put down their names among those who wanted to commence a Christian life, this young man was the first one to put his name on my paper, and I think it was largely the outcome of that Sunday talk, and yet I had encouraged Sunday visiting against which so much has been said in the pulpit of late. May God help us to use enlightened common sense in our religion as well as in the other affairs of life.

Dear friend B., you ask me what church I belong to. Here in Medina I am a member of the Congregational Church; but when I am away from home it is a pleasure with me to unite with any orthodox church in doing the Master's work. Were I located permanently in my Michigan home I would get a letter and unite with that church the very first thing I did. In fact, when I am working up there, and standing side by side with the good pastor, I feel as if I were one of them, and I believe God is pleased to see me stand among them. My seat in church is as near the minister as I can get, and I love to be near him. Another thing, in the work of building up the church we are learning by experience that it must be almost all *personal* work. It must be done by getting in contact with the people, and having personal talks and getting acquainted. I rejoice at anything in my home in Michigan that enables me to get acquainted with my neighbors and have good friendly talks. I have sometimes felt as if I hardly cared *what* it was that gave me an opportunity of making acquaintance. After that Sunday-school I started last spring, I had an opportunity of meeting quite a number of people out in the sugar-camp that pleasant April day whom I did not meet at Sunday-school. In fact, the shortest way for me to get my dinner was to go over there to the sugar-bush after it; and I had worked hard enough during the forenoon so I needed a good dinner. I should be sorry to have that community get the idea that I knew nothing and cared nothing for any thing but prayer-meetings, Sunday-schools, and sermons. I thank God from the bottom of my heart that he has given me a love for potatoes and potato-growing, and in a like manner a love for strawberries, peaches, apples, and a thousand other things pertaining to rural industries. I can, because of this, go among people almost anywhere, and talk under-

standingly about their pursuits and industries. I can almost always give them help of some kind—that is, when they are, like myself, *wanting* to learn.

Last spring a neighbor I did not know very well paid us a visit; and after he had stood around a little time and talked about several things he said, "Mr. Root, I have a sick cow, and I do not know what to do with her. I was wondering whether you did not know something about cows."

I was sorry to tell him that I knew almost nothing about cows. If it had been potatoes, bees, fruit, or chickens, I might have advised him understandingly; and for once I felt sorry that I had not at some time in my life had some little experience in the cow business. Now, when I am among the people, on week days as well as on Sunday, God knows I am hungering for an opportunity of pointing suffering humanity to the Lamb of God that taketh away the sin of the world. Paul says, "I am made all things to all men, that I might by all means save some." Now, of course, I have no right to speak for others; but I am sure that God calls me to be ready to lend a helping hand wherever I may be, no matter what day of the week it may be; and I rejoice in this opportunity of lending a helping hand because it opens to me a way to save souls.

In that chapter from which I have chosen my text Jesus says, "For the Son of man is Lord even of the sabbath day." There is a higher command and a more sacred duty laid upon us than to avoid working on Sunday. Dear friend B., can't you and I stand together, or pretty nearly together, on this matter of the observance of the sabbath? If you can not see your way, through God's love, to get a little nearer to where I stand in the matter, I will try, through God's love, to come a little nearer to where you stand, that we may, through him, be united. United, we stand; divided, we fall.

KEEP BUSY.

The following little gem came to us on a card sent out by the Anti-saloon League, Washington:

CHARLES KINGSLEY SAID:

Thank God every morning when you get up that you have something to do that day which must be done whether you like it or not. Being forced to work, and forced to do your best, will breed in you temperance, self control, diligence, strength of will, content, and a hundred virtues which the idle will never know.

I was just thinking a few days ago that not only my happiness but my health absolutely depends on keeping me busy. A vacation is not good for me unless that vacation includes, every day of my life, hard work; and I am forced to conclude that thousands of people who are now miserable might be well and happy if they were absolutely *obliged* to do some hard muscular work outdoors. If you can not do any better, wheel potatoes from the top of the hill, where they grow, down to the barn; and

just exactly this sort of work has been making me happy and well, and full of faith in God and love toward my neighbors.



AMONG THE POTATO-GROWERS.

Perhaps I should first say something about my own potatoes. I began planting on our place in Michigan in March, planting only Early Michigan. These made a wonderful growth, and the vines were dead by July. The yield was good, although I had been warned that early potatoes were mostly a failure in that locality. The next planting was about a fifth of an acre among the peach-trees about the first of May. From this fifth of an acre we dug 45 bushels of beautiful New Queens, handsome in shape, and equal to any thing I ever tasted for table potatoes. There was a great deal of surprise among my neighbors at such a yield—nearly 250 bushels per acre of *early* potatoes. Of course, it was on new ground, but mostly on a steep hillside. We hardly know whether to give the credit to the variety, New Queen, or to the beautiful woods-dirt soil, or to the careful tending. We planted Lee's Favorite about the same time, and these I expect to dig in a few days, and I think the yield will be fully equal to the New Queens. We kept planting as fast as we could get the ground ready, until about July 1; but those planted late are not going to do as well. This, I am told, is rather unusual. The season was excessively wet during the fore part, and it was rather too dry through August. We had quite a time with bugs, and blight is showing itself more or less.

In passing through Central Michigan I found very few fine-looking potatoes. Most of the potatoes suffered from the extreme wet in the early spring. Many were drowned out to half a stand, and some were spoiled entirely by water. Through Ohio there is also much evidence of damage from the excessive rains, and more or less blight shows almost everywhere. Down near our experiment station at Wooster things looked a little better, and some of the farmers said their crops of potatoes were good.

I have just been out through Summit Co., and I found very few nice fields of potatoes. When I got up into Tallmadge, in the neighborhood of my cousin, Wilbur Fenn, of whom I have written so much in regard to potato-growing, I began to find fields of potatoes with an almost perfect stand, of a bright vivid green; and when I reached the borders of his own farm I was almost astounded at seeing acre after acre with a perfect stand, tops bright and green, just as he has had them for years past at this

season. Some of the handsomest potatoes I ever saw were not planted till the 10th of July. Of course, they need three or four weeks more of fine weather to make a good crop. But there is a pretty fair yield as it is. I got off my wheel, went over into the potato-field and walked the whole length until I came to the house. Mr. Fenn turns under clover and timothy in preparing his ground for potatoes. He has a rotation that brings the potatoes in once in three years; but he frequently puts potatoes in the second year, and sometimes two years in succession, and yet he has almost no blight at all, and so little scab you may say he has none. Wherever he has any reason to think there might be scab he plants the New Russet. The Russet and Carman No. 3 are his favorites. Let me mention an object-lesson I found at one of his neighbor's, a Mr. Metlin. He had a field of about two acres of these two kinds, Carman and Russet. Half of the field was bright green, and handsome. The other half was injured by the wet, and a good deal blighted. I asked him which was the bright kind. He replied:

"Mr. Root, the bright-green tops are the Russet, but do not be in a hurry to draw conclusions. I covered the ground pretty thoroughly with stable manure where I planted the Russets, but I put none on the ground where the Carmans are."

At first I was thoughtless enough to start to inquire why he should give the Russets all the manure and the Carmans none, when he hastened to add:

"Why, don't you see the manure would have made the Carmans scabby?"

"And it is really true, Mr. Metlin, that you may manure the Russets all you want to, with any kind of manure, without any fear of making them scabby?"

"I think it is, Mr. Root; at least, I have applied manure to the Russets for many years—any kind of manure I happened to have; and they always have a bright-green rank growth, such as you see, but it never makes them scabby; at least, I never saw any on my place."

Of course, Mr. Metlin and Mr. Fenn have got to take their chances of a frost. There was a frost just before my visit, that killed pumpkins, sweet potatoes, etc., on low ground; but as my two cousins are located on high ground, where there is good air drainage, the frost never touched their potatoes at all. Now, to tell the truth, I do not know why Wilbur Fenn grows such handsome potatoes late in the season year after year when others so often fail. I think his locality has something to do with it. Oh, yes! here is an important point that I must not omit. Last year he planted late—I believe later than ever before; and although he had a nice crop of potatoes, before he could get around to get them all dug that hard frost came that doubtless some of you remember, and he lost about 400 bushels by their being frozen in the ground. Had he run a shovel-plow through

them, and thrown a good lot of dirt up over the potatoes it would have saved every one of them; and he says that, after this, that is just what he is going to do with late potatoes, even if it should not freeze so as to harm them. Potatoes that grow so rapidly as the Carmans will break open the ground, and the light will get in so as to make them green, injuring the quality for table use, but not hurting them for seed. He says he does not know any way to prevent this "greening" except to give them a good hilling-up about the last thing. If we have lots of rain after this hilling-up they are in just the right shape. If there is a dry spell about the time they are maturing, the severe hilling-up will, without question, injure the yield; but he said that hereafter he was going to have his potatoes covered enough to be safe against being greened by sun or air, and safe from frost in case there was a severe freeze just before being dug.

Potatoes are selling throughout Ohio from 40 to 50 cents—nice ones bringing the latter price. In the Traverse region dealers were paying, ten days ago, from 20 to 25 cents—25 for very nice ones. I think they are now a little higher.* When you consider, however, that it is worth about 15 cents to move potatoes from Northern Michigan to Ohio, the prices are not so very different after all.

A great many have asked me what I thought about the prospect—whether potatoes were likely to go up or down; but I am about as helpless as the Weather Bureau is in telling what the weather may be a month or more ahead. We can all guess; but our guesses are about as likely to be wrong as right.

The *Crop Reporter*, of Washington, D. C., reports the average condition, Sept. 1, of potatoes, was 89, against 94 Aug. 1. So you see the general report over the United States is that the condition generally is less promising than it was a month ago. I presume this is mainly on account of blight, which seems to be very widely spread, and came in very suddenly, many times quite unexpectedly. They further state that in every State having 100,000 acres of potatoes, except Illinois, there was an impairment of conditions during August.

POTATO TESTS AT THE OHIO EXPERIMENT STATION; COMPARISON OF VARIETIES.

On the 11th of September it was my pleasure to interview the boys, professors, and the other people at our station at Wooster. Yes, I rode my wheel; for if I went any other way I should not enjoy my visit, and I am afraid I might not have had a good appetite for testing the apples, peaches, grapes, etc.—that is, if my opinion of their respective merits should be asked.

Permit me to say, first, I have been all summer very much interested in *Potato Bulletin No. 133*, from our Ohio station. It gives reports of the yield, etc., of more than

50 different varieties of potatoes that are now prominently before the growers of the United States. Not only does it give the yield and behavior for 1901, but it gives the record of most of the kinds for three years past, and on many of them for five years. For instance, Early Trumbull has given the largest average yield for five years of any *early* potato. Every potato-grower should have this bulletin. It is furnished free to residents of Ohio, and I presume it will be sent to other people, but I do not know the terms. If you want it, write to the Experiment Station, Wooster, Ohio.

Of course, I hunted up the potato-fields the first thing. Prof. Green was absent; but his assistant, C. W. Waid, very kindly showed me over the grounds, and showed himself quite familiar with all that has been done, and a good deal that is yet to be done in the way of getting better potatoes.

One of the first pleasant sights that met my eye was a plot of Early Trumbull potatoes planted July 22. Now, for the central part of Ohio I should consider this a rather bold experiment; but they thought they would succeed in getting a fair crop, and I thought so too, judging from the looks—that is, if the frost holds off well. These late-planted potatoes are quite likely to escape blight as well as bugs; and when the usual fall rains strike them they seem to realize that their chance is short, and so go in on the double-quick. I have had a very fair yield of Early Trumbull in Michigan, but I planted them in May. I think they would have done better if I had planted them later. By the way, I have some small test-plots of potatoes planted at intervals all through July, and some even into August.

There are quite a few new early potatoes that promise big things. Early Fortune and Early Norwood, two new potatoes, each gave in 1901 at the rate of 286 bushels per acre. This year, however, they were not doing as well. If anybody should ask me what I consider the best all-around potato I do not know but I should say Carman No. 3. The Wooster station chose this potato for a test of the different kinds of fertilizers; but the whole plot shows up so well (the plots that had no fertilizer whatever as well as the others), that it looks as if it were going to be hard to make a comparison—that is, from the looks of the tops, which were then dying down. Of course, the Carman No. 3 does not give quite as large a yield as some others; but it is one of the most beautiful-looking potatoes the world has ever seen. There are almost no small ones—all large enough for the table. The eyes are almost level, which makes it an easy potato to pare. There are no prongy ones, and rarely a bad-shaped potato. It succeeds everywhere. I went over into the patch and pulled one big stalk at random. There were six great handsome potatoes. The only fault that could be found is that some women would call them

* A week after the above was written they went up 36 cts., but are now 28 to 30. In Cleveland, Ohio, they are quoted now 50 to 55.

too large for table use. One potato would have done very well for a small family, say Mrs. Root and myself. My remedy for potatoes that are too large is to plant closer. I do love to see smooth and handsome potatoes.

There is just one other, lately out, that eclipses the Carman in beauty of shape. It is the King of Michigan, introduced by E. T. Flansburg, Leslie, Mich. Even on our hard clay soil last year it gave potatoes so smooth and round that some of them looked as if they had been turned out in a lathe. Even the little ones looked like marbles of various sizes.

Among the late potatoes Northern Beauty gave in 1901 the largest yield — 321 bushels to the acre. Some others have eclipsed it, however, this season; and this shows that we can not well decide from a single trial. Reports for the past three and five years indicate this quite plainly. Our readers may remember that I helped to introduce Maule's Early Thoroughbred some years ago. The first season I was wonderfully taken up with it. After that the seasons or my own ground did not seem to be favorable, and I dropped it, thinking I would be very careful how I boomed another new potato from one season's test. In the station's tests of five years, however, Maule's Thoroughbred is placed pretty high on the average. In 1901 it gave 296 bushels per acre. Manum's Enormous gave the largest yield of any in the five-year test. Its shape, however, is not nearly as good as that of the Carman and some others; besides, it has troubled us here in Medina with scab a great deal of late.

The station has not had much to say about scab lately; in fact, they say they have not been much troubled with it. This seems a little singular, as we have about given up growing potatoes on our land here in Medina because of the attendant scab.

Quick Crop, from Vick, gave a remarkable yield in 1901. In fact, it was ahead of any other early potato; and, if I am correct, only one late potato excelled it. Quick Crop gave 300 bushels to the acre, and Northern Beauty gave 321. Only these two went above 300 in the test.

Whitton's White Mammoth has made an excellent record of an average of 251 bushels per acre for three years. It is also one of the best for quality; and for one I should like to see a little more attention paid to quality as well as quantity. Some years ago our Ohio station made a test of quality, putting Snowflake highest—No. 10. Freeman and Lee's Favorite were put No. 9; and, in fact, there are very few potatoes that can be classed as No. 9 in quality.

The Early Michigan I have frequently spoken of, especially when on Northern Michigan soil, would do very well to put beside Freeman and Lee's Favorite. It also has another important quality—the shape and smoothness are almost if not quite equal to those of the Freeman.

At our Ohio station there is no question

that chemical fertilizers increase the yield of potatoes. But the vital point is, is the increase sufficient to pay for the fertilizer and the expense of putting it on? Where potatoes bring from 75 cents to \$1.00 a bushel, as they did last year, there would be no question about it. Fertilizers would pay big. But in Northern Michigan potatoes frequently sell as low as 25 cents, or even 20. Can a farmer afford to buy fertilizers to grow potatoes to sell for 20 cents a bushel? I think most farmers would say very emphatically, *no*. Another thing, where I am located the potatoes must be hauled eight or nine miles to market; and I suppose if we were to hire a team to do the hauling it would cost 7 or 8 cents a bushel. Our Ohio station found that 160 lbs. of superphosphate per acre gave an increase of 14 bushels on an average yield of 172 bushels. In this case phosphate for the crop cost only 9 cents a bushel, to which must be added the trouble of putting it on the ground. I suppose the low price of potatoes usually is the principal reason why nobody ever heard of using chemical fertilizers in this part of Northern Michigan. Notwithstanding, I believe fertilizers can be profitably used on ground that has been cropped for potatoes for many years, especially where one grows potatoes for seed, not specially for table use.

I did not have time to look over the station grounds very much; but I was pleased to see a small area covered with cheese-cloth to test certain plants grown under partial shade. There were two little plots of lettuce and radish—one under the cheese-cloth, and the other right in the open air. Now, there had been plenty of rain, and the weather has not been exceedingly hot during August and September, as you may know. But the lettuce and radishes under the cloth were beautiful pictures of luxuriant thrift, while those outside, in the sun and wind, have been an almost entire failure. This cheese-cloth protection as I have mentioned before is a necessity for growing lettuce when the sun gets hot. I am sure it would be a wonderfully nice thing for many tropical plants—the ornamental bananas, for instance. This structure at the station was made of light stakes and very light poles; but this year they had had no trouble from storms and high winds. The cloth is so loosely woven that the rain goes right through it; but it keeps off all boisterous winds, and the plants are all the time in partial shade.

The apple-orchards at the station were worth going miles to see, especially their old orchards of monstrous trees. These have been carefully sprayed for a number of years so they are just pictures of luxuriance. No sort of insect nor any kind of fungus is permitted to injure them in the least. One great tree of Northern Spy had the ground under it covered with canvas so they could study every insect that dropped from its branches or that was shaken off. This tree, I should say, contained 25 bush-

els of the finest Northern Spies I ever beheld. I think the apples would readily command a dollar a bushel in almost any market. There were other trees in that orchard I think might yield five or ten bushels more than this Northern Spy. The size of the fruit was enormous, and almost every apple was free from blemish, scab, or scar. Of course, this result was obtained only by very careful, thorough, persistent work; but I believe it has paid in dollars and cents. The younger orchards are also pictures of luxuriance. Almost all the fruit tested is in a block of three trees. One is sprayed thoroughly, according to the best-known methods. The one by its side had no spraying whatever. The third tree is tested in some other way—I do not recall now. Now, here is an object-lesson for any fruit-grower. My impression is, however, that the unsprayed trees have an advantage because the trees all around them, or most of them, have had care and protection.

I went in among the grapes, and I was utterly bewildered by the wonderful fruit, larger in size, brighter in color, and more delicious to the taste, than any thing I had ever seen before. For instance, they were picking some of the Salem, and putting the bunches in baskets that would hold, I should say, two quarts. These retailed in the city, they said, for 10 cts., and I should say the price was ridiculously low for such a big heaping basket of great handsome fruit with a most enticing bloom and color, and nothing like disappointment to follow when you put one of the plum-like berries in your mouth. The arrangement of this test-vineyard is, I believe, on a plan started by my old friend W. J. Green. The vines are in long rows as usual, and they are supported by posts as usual—that is, the usual distance apart. But instead of running wires along on the posts, the wires were stretched on a cross-bar perhaps a yard long, nailed on top of the post. If I remember rightly there were three wires. One ran along right over the top of the post and one horizontally on the cross-bar, say 18 inches from the center wire. The posts are high enough so you can go under from one row of vines to the other. In fact, you can run through the vineyard almost as easily as you can through an apple-orchard, stooping a little to avoid the vines that hang down over your head. I do not suppose it would be possible to get a good photo, because of the many leaves and bunches of fruit in the way; but one who loves to grow fruit, and loves the fruit as a matter of course, might consistently go into a little vein of ecstasy over such fruit and the manner of growing it, especially after he had tasted said fruit when it was at its best.

Now, friends, who knows but the experimental station of your own State has some just as fine object-lessons as we have at our station? Have you been to see the men in charge, and talked over matters with them? If not, suppose you set about it.

Please do not imagine that everybody can

go into such a place and "help himself." There are notices up all around, to the effect that visitors are forbidden to help themselves to any fruit, either on the trees or on the ground; but if you call for somebody to show you about, I think you will have no reason to complain. It is something this way: There may be single fruits or half a dozen fruits on a certain tree or vine that they would not lose for a ten-dollar bill. Perhaps an apple they have been watching for weeks may have dropped on the ground; and if some thoughtless person picked this apple up, tasted it, and threw it away, it might make them a lot of trouble. And may I suggest that, when you go on to *anybody's* premises, you first hunt up the owner? Don't touch a thing unless he gives you permission, and tells you what you may safely appropriate.

Special Notices by A. I. Root.

GOOD AND VALUABLE BOOKS FOR PREMIUMS.

On page 168, Feb. 15, we made an offer of the dollar poultry-book free to everybody who sent us \$1.00 for GLEANINGS, and 6 cts. for postage on the book. As it is a large handsome book of 352 pages, fully illustrated, with a handsome cover, embellished with pictures of poultry in bright colors, 100 copies were gone in almost no time. Another hundred went off not quite so fast; then as the notice got to be old, the third hundred is, a good many of them, on our hands. As it is now time to begin to renew for another year, we would remind you of this book offer. It is about the handsomest and most useful premium I have ever seen offered with any journal. We think GLEANINGS is worth the dollar; and when you get the poultry-book I feel sure you will consider the book worth a dollar.

Just one thing more: We have just got a lot of that beautiful book by Sheldon, "In His Steps," that has made such a stir in the world, not only in the United States, but away across the sea, which we can offer you on the same terms as the poultry-book. Of course, if you want either of these books you must not ask for any other premium. The last one, it is said, has had a larger sale than any other book since Uncle Tom's Cabin was published. A million of copies were sold in a short time in England alone. Best of all, it is a book that does good wherever it goes. After you read it you will want to lend it to your neighbors; and every one of the books should be kept on the move until it is worn out.

PRICES OF SEED POTATOES FOR PLANTING IN 1903.

Now, friends, I do not know what seedsmen are going to do about prices; but I will tell you what I will take at the present writing for my northern-grown seed potatoes. If any reliable grower makes better prices later on I will give you a rebate to make price the same as his. If the prices are advanced, then you will be the gainer, that is all. Those mentioned first are the earliest; the next a little later, and so on, the last mentioned being the latest:

Triumph, Early Michigan, Early Ohio, Early Trumbull, Bovee, New Queen, Freeman, Twentieth Century, Lee's Favorite, State of Maine, King of Michigan, Maule's Commercial, Whitton's White Mammoth, Carman No. 3, Sir Walter, Russet, Craig.

All the above will be \$3.00 per barrel of 11 pecks, except the State of Maine, Maule's Commercial, White Mammoth, Carman No. 3, Sir Walter, Russet, and Craig. These will be \$2.50 per barrel. And last, but not least, the King of Michigan will be \$5.00 per barrel. It is not only the cleanest and handsomest potato I ever grew, but the quality is as fine as the looks. Seconds of all the above, half price while they last. The seconds will be half price because they're mostly small; but we also reserve the privilege of throwing anything into the seconds which we deem for any reason not suitable for firsts; and there will, therefore, be among the seconds a few potatoes that are scabby, prongy, bad-shaped, cut in digging, or gnawed by grubs. No

other grower that I know of puts his seconds at only half the price of firsts; and while the greater part of our customers are usually pleased with their seconds there are a few who complain; and this is why we have particularly specified that, if you buy seconds, you must expect to take all that are not *strictly first-class*, as above.

Any time before the first of November, potatoes will be shipped from Traverse City, Mich. About Nov. 1 we expect our whole crop to be moved to Medina, O., where they will be stored in our potato-cellars, ready for shipment in the spring. We will ship this fall, and pack up so as to guarantee safe delivery from freezing, all orders received before Nov. 15.

Convention Notices.

The annual meeting of the Northern Illinois Beekeepers' Association will be held in the Court House, at Freeport, Ill., on Tuesday and Wednesday, October 21 and 22, 1902. All interested in bees are invited to attend. B. KENNEDY, Sec., Cherry Valley, Ill.

The first annual meeting of the New Jersey Beekeepers' Association will be held at 10 A.M., Thursday, October 2, in Club House, on Inter-State Fairgrounds, Trenton, N. J. We extend a most cordial invitation to all beekeepers, and others interested in bee culture, to be present. GEO. N. WANSER, Sec.
B. F. ONDERDONK, Pres.

Kind Words from our Customers.

I have just finished reading the A B C of Strawberry Culture. I never read a book with more interest. I am a market-gardener, and have obtained my little knowledge by reading, but never found a book so simple and easy to understand as the above named. Thurmont, Md. I. SIGMUND.

I like GLEANINGS because it is a clean paper edited by a clean Christian man who isn't afraid to print his mind about rum, tobacco, profanity, or any other unclean thing that Christ hates. I praise God that the same salvation saves us both and any other person who will let it. F. E. WHITING.
Plainville, Mass.

Homeseekers' Excursions to the Great West and Northwest.

Settlers and homeseekers are moving westward in large numbers. Special low rates to all points west and northwest this fall via the Chicago & North-Western Railway, the only double-track road to the Missouri River. Ask any ticket agent for particulars. Maps and interesting printed matter free on application to W. B. Knistern, G. P. A., Chicago, Ill.

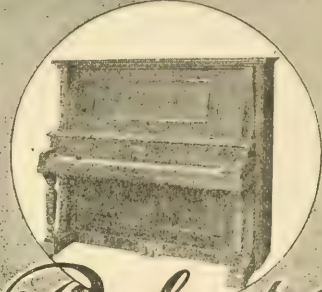
To Sell Outright—U. S. Patent Apiary

Means are provided for supporting the hives so they will be practically inaccessible to the various classes of insects and small animals that, under ordinary conditions, gain access to the interior of the hives, and despoil the contents, and destroy the inhabitants. Another advantage is that the hives are so spaced in relation to each other that they are exposed to view on all sides, and therefore freely accessible in all directions to the bees. At the same time the hives are protected from the sun and rain, and a neat warm housing is provided in which the hives may be inclosed during cold weather, thus securely protecting the bees. Will sell State, county, or farm rights upon application.

Charles O. Lett, Eclectic, Alabama.

To make cows pay, use Sharples Cream Separators, book "Business Dairying" & cat. 288 free. W. Chester, Pa.

The Ideal Piano



Packard

Built anticipating the demand of those satisfied with nothing but the best and looking for a piano of the

Highest Artistic Creation

Are you considering the purchase of a piano? Our proposition will prove more entertaining than any you have had. Catalog and full information free on application.

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MANN'S LATEST MODEL BONE CUTTER MAKES MEN'S PAY.



because it gives them food that makes them lay. Open hopper and automatic feed, makes cutting always easy. Sent on

TEN DAYS' FREE TRIAL.

No pay until you prove that it cuts faster and easier than any other. Isn't that better for you than to pay cash in advance for a machine you never tried? Catalog free.

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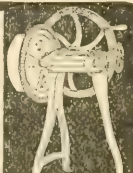
GET A DANDY BUSHELS OF EGGS

follow the feeding of cut bone. The

DANDY Green Bone Cutter

is the simplest, fastest and easiest bone cutter made. Price \$5.00 up. Sold on 15 days trial. Satisfaction or no sale. Send for price book and Special Proposition.

Stratton Mfg. Co., Box 54, Erie, Pa.




In Olden Days

men were broken on the wheel, now they buy

Electric Steel Wheels, and save money. They fit any wagon. Made with either staggered or straight spokes. Let us tell you how to make a low down wagon with any size wheel, any width tire. Catalog tells, it's free.

Electric Wheel Co., Box 95 Quince, W.



Choicest Fruit and Ornamental Trees,

Shrubs, Plants, Bulbs, Seeds. 40 Acres Hardy Roses. 44 Greenhouses of Palms, Everblooming Poses, Ficus, Ferns, etc. Correspondence solicited. Catalogue Free. 49th Year. 1000 Acres.

THE STORRS & HARRISON CO.,

PAINESVILLE, OHIO.

IF YOU ARE INTERESTED IN

DR. GANDY

or his bees, his artificial pasturage, and his yields of honey; if you wish to see pictures of his home, his apiaries, his patches of catnip, and other plants, the seed of which he has scattered, etc.; if you wish to know all that the editor of the REVIEW learned during a visit of three days; if you wish to know the TRUTH of the matter, send ten cents for the October REVIEW, which will be out about the middle of the month. With this number will be sent two other late but different issues, and the ten cents may apply on any subscription sent in before the end of the year. A coupon will be sent entitling holder to the REVIEW for only ninety cents. Address

W. Z. Hutchinson, Flint, Michigan.

50 CENTS

That's all it costs for a year's reading of the

Rocky Mountain Bee Journal.

Besides reflecting all the doings and happenings and the latest methods and appliances that pertain to bee-keeping in the great Rocky Mountain alfalfa regions, we talk up co-operation and organization as no other bee-journal has ever undertaken to do. This journal will give you new ideas, and help you whether you own one colony or 5000. You need it. The 10-cent trial offer is withdrawn. Samples free.

H. C. MOREHOUSE, BOULDER, COLO.

Postoffice Box 611.

POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts, if you mention Gleanings (reg. price, 50 cts). Inland Poultry Journal, Indianapolis, Indiana.

GOOD FOR CUBA!

The letter below, entirely unsolicited, proves that the "Case" queens are GOOD for Cuba. Mr. Frierson bought 100 or more, last fall.

Friend Case:—The queens all came in good order. My bees, especially those I got from you, have superseded very few queens. Only two swarmed, and they were very much exposed to the sun. Notwithstanding the loss I had last fall, which caused me to divide up so late, I got a great deal more honey than my neighbors, and extracted later in the season. And now comes the pretty part: I have not fed a pound of sugar this summer, while all my neighbors have been feeding for some time. I have many hives now with 40 lbs. of honey, while the dark (Italians) have none, and I have to take frames of honey from your Italians and give to the dark ones—Italians, the parties who sold them called them. Call them what you will, it is very strange to me that they will starve while others in the same yard have such an amount of surplus. I want to get them strong early this season, then, if they bring in the honey as they did last season.

Ceiba Mocha, Cuba, Aug. 15.

C. B. FRIERSON.

The above queens were reared from same mother and same method I am now using. Except for number of queens tested it is a fair sample of a big lot of testimonials.

Prices of queens from my golden strain: One select warranted, \$1.00; six, \$5.00. Fair average queen, 75c; six, \$4.00. Send for folder.

J. B. CASE, Port Orange, Florida.

QUEENS!

BY RETURN MAIL.

We are now breeding from three distinct strains; viz.: Imported or leather color, Root's long-tongued or red-clover strain, and our old strain of white-banded yellow Italians, or albinos.

PRICES:

| | |
|----------------------------------|--------|
| Tested, each.. | \$1.25 |
| Select tested, each..... | 1.50 |
| Warranted purely mated, each.... | .75 |
| Same, per half dozen..... | 4.00 |
| Same, per dozen..... | 7.50 |
| Untested, each..... | .65 |
| Same, per half dozen..... | 3.50 |
| Same, per dozen..... | 7.00 |

We have also a full line of bee-keepers' supplies including THE A. I. ROOT COMPANY'S GOODS. Send for our 32-page illustrated catalog.

W. W. Cary & Son,

Lyonsville, Mass.



POULTRY PAPER, illust'd, 20 pages, 25 cents per year. 4 months' trial 10 cents. Sample free. 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. Catalogue of poultry books free. *Poultry Advocate*, Syracuse, N.Y.

The Fred W. Muth Co.

—Front & Walnut Streets—

CINCINNATI, OHIO.

Honey-jars

Muth's 1-pound square with patent glass stoppers and steel spring are the best.  Only \$5.50 per gross. Send for catalog of bee-supplies.  Special inducements. 

Long Tongues Valuable South as well as North.

How Moore's strain of Italians roll in the honey down in Texas

Hutto, Texas, Nov. 19, 1901.

J. P. Moore.—*Dear sir:*—I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my out-apiaries next spring with your queens.

Yours truly, HENRY SCHMIDT.

The above is pretty strong evidence that red clover is not the only plant which requires long-tongue bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75 cts. each; six, \$1.00; dozen, \$7.50. Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00. Safe arrival and satisfaction guaranteed. Circular free. I am filling all orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.
Pendleton County.

HONEY QUEENS!

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

A prominent queen-breeder writes: "I have reared and sold over 5000 queens in the past few years, and I am using your stock exclusively, as it is the best I can get." Another writes: "The queen mother I got of you is the best queen I ever saw." A prominent writer for the *Review* states the Laws queen is making a fine showing. Many nice letters indicative of the superiority of Laws' queens on file. Prices: Tested or untested, \$1.00 each; six for \$5.00. Discount on large lots. Write for circular.

W. H. Laws, Beeville, Texas.

1200 FERRETS. All sizes; some trained; first-class stock. New price list free. N. A. KNAPP, Rochester, Lorain Co., Ohio.

100 per cent Profit from Bees

in California shown by U. S. Honey Report of 1899—a short year. Our 1901 crop of 300 cars of honey shows a profit of 130 per cent on the investment. By this same report the Eastern States show an average profit of only 50 per cent on the investment. 100 colonies in a good year will make a clear profit of 100 per cent. They are no expense in off years.

The Pacific Bee Journal Free!

We club with GLEANINGS (new or renewal) for \$1.00 a year. Send subscription for both to us at 237 East Fourth Street, Los Angeles, Calif.

The Pacific Honey Producers.

Incorporated for \$50,000; \$1 a share. Its property is manufacturing plant and apiaries. Prospectus on request.

Minnesota Bee-keepers' Supply Mfg. Co., Manufacturers of Bee-hives, Sections, Shipping-cases, and Everything Used by Bee-keepers.

Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

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at Catalog Prices.

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Let us show you how quick we can fill your orders. Best of goods and the best place in country to ship from.

Get our Prices on Dovetailed Hives and Sections. Write to us if you have any Honey or Beeswax to sell.

C. M. SCOTT & CO., INDIANAPOLIS, INDIANA.
1004 East Washington Street.

\$3300

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Pacific Coast

From Chicago via the Chicago & North-Western Railway every day during September and October. Pullman Tourist Sleeping Cars Chicago to San Francisco, Los Angeles and Portland daily; double berth rate from Chicago only \$6.00. Personally Conducted Excursions to the Coast twice per week.

Round trip tickets are also on sale daily at reduced rates Chicago to the Coast, with special low rates on certain specified dates. Three trains a day to San Francisco and two per day to Portland. The only double track road to the Missouri River.

ALL TICKET AGENTS SELL TICKETS VIA THE

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NOTHING AS GOOD ADVERTISED ANYWHERE.

Sewing Machines

\$7.25 TO \$26.50

Shipped on approval

anywhere in U. S. No money in advance. All kinds, all styles; direct from factories. Avoiding salesmen's expenses and dealers or agents exorbitant profits saves you from \$10 to \$45. Estab. 1885. 250,000 sold. Testimonials from every state. Reference: First Nat'l Bank, Chicago. Send for big illustrated catalogue showing all styles and samples of work.

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All Wool Blanket

No. 16395, every thread, including warp, is made of the finest, hand twisted wool, the top is long and fleecy, making an elegant blanket; finished in plaids, GUARANTEED FAST COLORS. Sizes 76x90 in. \$3.55, 80x94 \$3.55.

\$1.95 for our STORM KING blanket, No. 16345, as shown in cut. It is large, thick and heavy; for service and warmth. Nothing ever offered to equal it at anything like our price.

Size 84x94 in. Fancy 11 in. wool border, in fast colors of black, lemon, white and scarlet. Also full line heavy duck storm blankets.

\$1.20 for No. 16156, Burlington stay-on stable blanket. Heavy brown duck and 2 1/4 wool lined. Has two web surcingle, strong and well made. Fifty styles blankets, of all sizes to select from. 63" and up. 45 STYLES PLUSH AND FUR ROBES. DON'T PAY TWO PRICES for your blankets, but send for our FREE catalogue, giving the lowest prices on everything for the farm, horse and barn, on 40,000 staple articles needed every day.

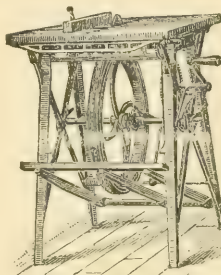
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Page wire, nor our principle of construction, in any wire fence excepting the Page. We make our own wire, and don't sell any.

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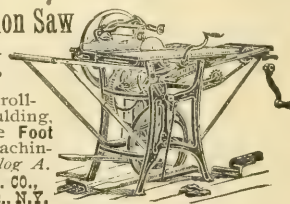
This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.

Machines on Trial. Send for illustrated catalogue and prices. Address W. F. & Jno. Barnes Co., 545 Ruby St., Rockford, Illinois.

Union Combination Saw

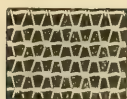
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SENECA FALLS MFG. CO., 14 Water St., Seneca Falls, N. Y.



Angora Goats

are handsome, hardy, profitable. Prize stock; low price; circular. ED. W. COLL & Co., Kenton, O



FENCE! STRONGEST MADE. Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted, Catalog Free. COILED SPRING FENCE CO. Box 101, Winchester, Indiana, U. S. A.

Chas. Israel & Brothers

486-490 Canal St., cor. Watt St., N. Y.

Honey and Beeswax

Liberal Advances Made on Consignments Wholesale Dealers and Commission Merchants. Established 1875.

Queens! Queens!

We have five different yards, 5 to 20 miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albino are bred for business. You can send in your orders at following prices the rest of this year: Tested, \$1.50 each; \$3.00 for six; \$15.00 per doz. Untested, 75c each; \$1.25 for six, or \$6.00 per doz. Fine breeders, \$5.00 each. Safe arrival guaranteed. Write for free catalog. Tells how to raise queens and keep bees for profit. **The Jennie Atchley Co., Beeville, Bee Co., Tex.**

Queens for Aug. and Sept., 60 cts.

Abbott L. Swinson, queen-specialist, will mail warranted American Albino Italians (best bees known) to introduce the stock, at 60 cts. each; \$6.00 per dozen. Everybody try them, and get the bee you need.

Swinson & Boardman, Box 358, Macon, Ga.

HONEY QUEENS FROM TEXAS.

I can furnish queens of 6 different races, all bred in their purity in separate yards from 6 to 25 miles apart. Untested queens, 75 cts. to \$1.00 each. Tested queens of either race, \$1.50 to \$3.00 each. Breeders, \$3.50 to \$5 each. Bees by the pound, and 1, 2, and 3 frame nuclei a specialty. Prices cheap. Quoted on application. Price list free. **Will Atchley, Box 79, Beeville, Bee Co., Tex.**

Wants and Exchange.

WANTED.—Beeswax; bright yellow preferred. I. J. STRINGHAM, 105 Park Pl., New York City.

WANTED.—To exchange apples for sweet potatoes. JOHN ANDERSON, Oriskany Falls, N. Y.

WANTED.—To buy bees in Ohio or adjoining States. W. J. WOLFE, Ludlow, Ky.

WANTED.—A location for a custom saw and feed mill. WM. S. AMMON, Reading, Pa.

WANTED.—To sell or exchange, a lady's Crescent bicycle; fine condition. H. SHANE, Medina, O.

WANTED.—To exchange bees, supplies, books, and a long list of articles (write for list), for typewriter, combined hoe and drill, and beeswax. F. H. MCFARLAND, Hyde Park, Vt.

WANTED.—To exchange sweet-clover seed for queens or cash. THE SNYDER BEE & HONEY CO., Kingston, N. Y.

WANTED.—To trade 160 acres of rich, level, black land for bees. Write for particulars in first letter. D. E. L'HOMMEDIEU, Colo. Story Co., Iowa.

WANTED.—We want to hear from those having choice comb honey to sell, stating quantity, quality, size, and style of sections, and how packed. If not yet packed for shipment state how soon you can have it ready, and the price asked delivered here or free on board at your place. THE A. I. ROOT CO., Medina, Ohio.

WANTED.—To sell cockerels. Last June I bought 65 eggs of the famous Wickoff strain of single-comb White Leghorns, and have 58 chicks. The cockerels are too good to be killed. Will express one for 50c; three for \$1.30. They are beauties; none better. See what Reliable Incubator catalog says. Get them while small; express will be light. No pullets for sale. C. A. OLMSTEAD, East Bloomfield, N. Y.

WANTED.—To exchange pups (bird), 7 weeks old, for incubator or offers. Pups are worth \$2.50 each. R. J. CARY, Route 42, Norwalk, Conn.

WANTED.—To exchange bees for a young cow or heifers; must be good ones. W. D. SOPER, Route 3, Jackson, Mich.

WANTED.—To exchange fine violin for windmill, gasoline-engine, shotgun, grain, or honey. G. E. WELLS, Roseland, N. C.

WANTED.—To sell a bee, fruit, and poultry ranch. Write for particulars. GEO. C. HATCH, Port Angeles, Wash.

WANTED.—To send you catnip seed—real nice seed—at 10c per large ounce packet, prepaid. J. E. JOHNSON, Williamsfield, Knox Co., Ills.

WANTED.—To exchange modern fire-arms for foundation-mills and foot-power saw, also wax and honey. WM. S. AMMON, Reading, Pa.

WANTED.—To sell forty strong, healthy colonies of Italian bees in almost new 8 and 10 frame Dove-tailed hives, at \$1.00 per colony. CHAS. D. DAY, Northampton, Pa.

WANTED.—A buyer for my stock of merchandise, or will exchange for a small farm in valley of Virginia. Wish to start a fruit and bee farm. W. E. TRIBBETT, Spottswood, Va.

WANTED.—To correspond with a young man who thoroughly understands the care of bees, and who would be open for engagement in the spring of 1903. H. C. MILLS, 424 Arabella St., Pittsburgh, Pa.

WANTED.—To sell an apiary of 30 colonies, a lot of bee-supplies, 5 lots—with house, barn, and two shops—in a small village. Must be sold; a great bargain for some one. Address for particulars. H. D. EDWARDS, Delhi, Ill.

WANTED.—To sell a four-horse-power gasoline-engine; good as new; will sell very low for cash. C. L. GOULD, East Dover, Vermont.

WANTED.—To sell 200 swarms of Italian bees. Also 7000 lbs. white extracted honey in 60-lb. cans; 5 acres choice improved land, and house and two lots; or will trade for merchantile business. Don't write unless you mean business. ELIAS FOX, Hillsboro, Wis.

WANTED.—Beeswax; highest market price paid. Write for price list. BACH, BECKER & CO., Chicago, Ill.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and 4 1/4 x 4 1/4 sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

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WANTED.—To exchange an American fruit-evaporator (nearly new, capacity 8 to 12 bus., cost \$35), for honey or supplies. Will sell evaporator for \$15. DEAN FERRIS, 1510 Maple Ave., Peekskill, N. Y.

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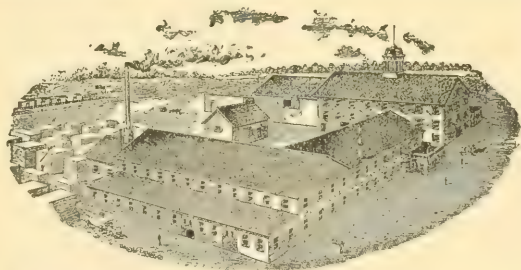
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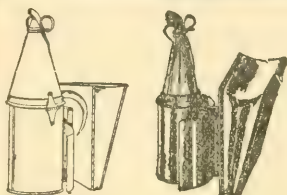
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Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

MILWAUKEE.—The main features of this market on honey have not met with any decided change since our last. The supply is not very large of any kind, and the demand is not urgent, yet choice comb or extracted will meet favor, and we encourage shippers and feel sure satisfactory results will follow. We quote fancy 1-lb. sections, 16@17; A No. 1, 15@16; old and amber, nominal. Extracted, in barrels, kegs, or cans, white, 8@8½; amber, 7½@8. Beeswax, 28@30.

A. V. BISHOP & Co.,

Oct. 8. 119 Buffalo St., Milwaukee, Wis.

NEW YORK.—Good demand for comb honey. Fancy worth 16; No. 1, 15; other grades, 12@14. Southern, in barrels, 4½@5½ per lb. Beeswax, 27@28. We will buy comb honey outright.

FRANCIS H. LEGGETT & Co.,

Oct. 9. Franklin and Varck Sts., New York.

SAN FRANCISCO.—Comb honey, 10@13. Extracted water-white, 6@6½; light amber, 5½@5¾; dark amber, 4@5. Beeswax, 27@30.

E. H. SCHAEFFLE,

Sept. 25. Murphys, Calif.

CHICAGO.—The advance noted in our last quotation has been maintained, and there is a very good demand for honey at the present time. No. 1 to fancy white comb brings 15@16 per lb., with the lower grades selling at 2 to 3 cts. less. This includes the light amber, dark grades of amber sell at about 10@11, and buckwheat 9@10. Extracted is steady, with white bringing 6½@8, according to color and quality. The ambers bring from 6@7; dark, 5½@6 per lb. Beeswax in good demand at 30c per lb.

R. A. BURNETT & Co.,

Oct. 9. 199 South Water St., Chicago, Ill.

KANSAS CITY.—The demand for both comb and extracted is good, especially comb, at quotations. We quote fancy white comb, 14@14½; No. 1, 13½@14; No. 2 white and amber, 13@13½. Extracted white, 6½@7; amber, 6@6½. Beeswax, 22@25.

C. C. CLEMONS & Co.,

Oct. 11. 306 Grand Ave., Kansas City, Mo.

BUFFALO.—New comb honey is selling very well now. Receipts very light for this time of the year. Some call for extracted in 125 to 160 lb. packages. Fancy white comb, 14@15; A No. 1, 13½@14; No. 1, 13@13½; No. 2, 12@13; No. 3, 11½@12; dark, 10@12. Extracted white, 6½@7; amber, 5½@6; dark, 5@5½. Beeswax, 28@30.

W. C. TOWNSEND,

Oct. 7. 167 Scott St., Buffalo, N. Y.

CINCINNATI.—Comb honey is in good demand, the supply is short, and very little offered. No. 1 fancy sells at 16c; other grades less, according to quality. The demand for extracted is very active, and prices are a little better. Amber sells for 5½@5¾; alfalfa water-white, 6@6½; white clover, 7½@8. Beeswax, 30.

C. H. W. WEBER,

Oct. 7. 2146 Central Ave., Cincinnati, Ohio.

NEW YORK.—We are having a good demand for Comb honey, and receipts are quite plentiful. We quote fancy white at 15c, and some exceptionally fine lots will bring from 15½@16; No. 1 white, 13@14; amber, 12. Buckwheat is late in arriving and none has been on the market as yet to cut any figure. Expect large receipts next week, and it will sell at from 10@12c, according to quality and style of package. Extracted in fairly good demand, at 7½ for white, 6½ for light amber, and 5½@6 for amber. Southern, in bbls., at from 55 to 65c per gallon. Beeswax nominal at 28c.

HILDRETH & SEGELKEN,

Oct. 10. 265-7 Greenwich St., New York City.

ALBANY.—Honey market firm with good demand and moderate receipts. We quote fancy white comb, at 16c; A No. 1, 15; No. 1, 14@15; No. 2, 13. Fancy buckwheat, 14; No. 1, 13. Extracted, light, 7@7½; mixed, 6@6½; dark, 5½@6. Beeswax, scarce, 28@30.

MACDOUGAL & Co.,

Oct. 10. 375 Broadway, Albany, N. Y.

SCHENECTADY.—There is a good demand for both clover and buckwheat at following prices. Fancy white in paper cartons, 16; No. 1, 14@15; No. 2, 12½@13; buckwheat, 11@12½. Extracted, light, 6½@7½; dark, 5½@6.

CHAS. MCCULLOCH,

Oct. 10. 523 State St., Schenectady, N. Y.

BOSTON.—Our honey market remains firm, with good demand and fair stocks on hand. Honey is not coming forward as fast as usual, and tendency of prices is steady. We quote our market as follows: Fancy white, 1-lb. sections in cartons, 15c; No. 1, 15; No. 2, very light supply, 14; glass front sections generally 1c less than this. Light amber, 8c; amber, 7½. Extracted honey, light supply.

BLAKE, SCOTT & LEE,

Oct. 11. 31. 33 Commercial St., Boston, Mass.

DENVER.—No. 1 white comb honey, per case of 24 sections, \$3.10 to \$3.25. Fancy white comb honey scarce, and brings \$3.50 per case. Extracted, 7½@8c. Beeswax, 22@26.

THE COLORADO HONEY PRODUCERS' ASS'N.,

Oct. 11. 1440 Market St., Denver, Col.

PHILADELPHIA.—Comb honey is in quite active demand. Of late years the whole season's jobbing business is thrown into October and November, so all shippers should market their honey early. We quote fancy white comb, 16@17; No. 1, 14@15. Extracted, white, 7@8; amber, 7.

WM. A. SELSER,

Oct. 11. 10 Vine St., Philadelphia, Pa.

FOR SALE.—Light extracted honey; cans and kegs, 7@8c per lb. Sample, 8c.

I. J. STRINGHAM, 105 Park Pl., New York City.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,

301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—50 cases extracted heartsease honey, two 5-gal. cans in case, 120 lbs., at 7c lb., also 10 to 20 cases dark at 6c lb. JOHN A. THORNTON, Lima, Ill.

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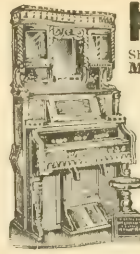
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Geo. R. Hankins, Massillon, Ohio.

Queens that are Satis-

factory in Cuba and Canada, Maine and California, are worth trying. I have that kind. See former ads. and free folder. Prices: Warranted, 75 cts.; six, \$4.00; select, \$1.00; six, \$5.00.

J. B. CASE, Port Orange, Florida.

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Marshfield Manufacturing Company, Marshfield, Wisconsin.

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An apiarian-supply business in a leading eastern city. Established ten years, and paying well. Fair honey business during the fall and winter. Good sale for bees and queens.

Purchaser would need at least \$3500 to buy and carry it on successfully.

I. J. Stringham, 105 Park Place, New York.

GLEANINGS *A JOURNAL DEVOTED TO BEES AND MONEY AND HOME INTERESTS.* **BEE CULTURE** ILLUSTRATED SEMI-MONTHLY Published by THE A. ROOT CO., \$1.00 PER YEAR MEDINA, OHIO.

VOL. XXX

OCT. 15, 1902.

No. 20



YOU ASK, Mr. Editor, p. 799, "Are you sure that those wax scales found on the floor-boards in the spring were real wax scales? or is it possible our German friends," etc. Yes, they're wax scales fast enough. Have seen 'em with my own eyes, not in Germany, but right here in Marengo. [I give it up if you saw the scales.—Ed.]

NO, I DON'T FAVOR two inches under the combs summer and winter, Mr. Editor, p. 800. You can't have so much space in summer, for the bees will fill it with comb. You were, perhaps, deceived by seeing that my floor-boards were not reversed in summer. Nowadays, instead of reversing them I put in a false bottom to fill up the extra space. Less trouble than to have to lift the hives for reversing. [I accept the correction.—Ed.]

NEITHER DO I consider the Clark "suitable for only a few colonies, or for a person who has an abundance of time to keep it going." A new Clark works well, and will give a big smoke. But it's too expensive, for in a little while it plays out in some way so it must be thrown aside. [The Clark is sold for a cheap smoker. We have thought several times of dropping it out of our catalog; but there are those who want a cheap thing simply because it is cheap in price. Perhaps we should be doing such people a real kindness by denying them the cheap thing in spite of their preference.—Ed.]

WHAT A SEASON this has been! bees starving in June, and here it is the first of October, and bees busy working on clover, both white and red! [My, oh my! what a locality! I remember that, some years ago, after the time for the usual honey-flow had fully passed, and you had no honey, you

afterward secured a big crop. The strange part of it is that bees should be gathering honey from white clover. In our locality it has been too cold and rainy for the bees to do any thing for the last week or ten days.—Ed.]

GEORGE SHIBER is right, p. 808, in saying, "Do not make a brushed swarm before queen-cells are started;" for, as he says, the colony may not offer to swarm; and if it does not you will get a better yield than with a brushed swarm; at least I think that is the case here. Besides, leaving the non-swarmlers unbrushed, and breeding only from them, will be just so much on the road toward a non-swarmling strain. In most cases the colonies that give the best yields are those that never offer to start a queen-cell.

I ALWAYS SAID James Heddon deserved a vote of thanks for giving us the slat honey-board. As friend Greiner says, p. 807, it lessened pollen, travel-stain, burr-combs, and propolis. But when I learned to lessen those things just as much with thick top-bars and proper spacing, I was delighted to cast aside the slat honey-board with its sticky mess between top-bars and honey-board, and I can't understand, friend Greiner, why you should want to give it another trial. [Just our experience exactly; and yet every once in a while I run across men who do not believe that thick top-bars properly spaced will lessen—in fact, do away almost entirely with the burr-comb nuisance. I can only think their prejudice is so deep-seated that *unconsciously* they are blind to their best interests.—Ed.]

A CORRESPONDENT wants me to tell what should be the gross weight of hive, combs, honey, bees, and every thing, so as to be sure there shall be no lack of winter stores. There can be no fixed rule. I want my eight-frame hives with cover and bottom-boards to weigh not less than 48 pounds each. A ten-frame hive should weigh more; a chaff hive much more. Old combs weigh much more than new ones. One hive may have several pounds of pollen more than another. Outdoor wintering requires several pounds of honey more than cellar winter-

ing. A few pounds too much honey for winter is just about right. [The trouble is, a good many do not take into consideration the matter of locality. Here in Ohio, for example, outdoor bees would require less than they do in Marengo, Ill.; and I suspect that, for Northern Minnesota and Wisconsin, they would require more.—Ed.]

"ALL KNOW, perhaps," says George Shiber, p. 808, "that the queen would rather lay in an old black comb than in one that has no cocoons." Strange to say, all don't know that, and every now and then some one insists that old comb is not liked so well by the bees. Not so often in this country, however, of late, but across the water it is sometimes given as one reason for renewing comb that is a few years old. [My experience and observation are the same as yours. If any thing, I thought the queen *preferred* to lay in foundation partly drawn out into comb—perhaps because she does not have to crowd herself down so deep into a small hole as she does when laying in old comb. Possibly what George Shiber had in mind was that the bees prefer old comb, apparently, for a winter brood-nest. That is quite different from the other statement, that the queen prefers old combs for laying.—Ed.]

"THERE WAS no doubt about it—catnip had been sown along the roadsides," p. 805. No doubt, Mr. Editor; but your seeing it there was no proof that any man had a hand in sowing it. You'll find it here along the roadsides, but I doubt that a seed of it was ever intentionally sown by any man, bee-keeper or not. Do the birds sow it? [Of course, I could not *prove* that the catnip I saw along the roadsides at Humboldt sprang from seeds that Dr. Gandy and his men sowed; but from the fact that there were *more* catnip-plants along the wayside around Dr. Gandy's home than I had seen along any other wayside in the country, I was led to believe that he had actually increased the number by hand sowing. While believing all this, I am still doubtful about catnip ever being able to make a very great increase in the amount of honey per colony. It takes hundreds and hundreds of acres of pasture to make much showing in supers.—Ed.]

SOME YEARS AGO I tried brushed swarms; but, although better than natural swarms, I was never very enthusiastic about them, for still they are swarms after a fashion. What I want is to keep the whole force, present and prospective, together, and with brushed swarms the colony is depleted of its future force. [From the number of reports in this issue it would seem to me you abandoned the brushed plan prematurely. It is really surprising, the number who have tried it and who are enthusiastic in its praise. See our symposium elsewhere in this issue. The plan of brushing swarms practiced by Vernon Burt gives him *more* of a working force—more bees—than a natural swarm would. Just turn

again to page 640, Aug. 1st GLEANINGS, where I described his method of forcing swarms on the "shook" (?) plan. In the multitude of counselors there is wisdom, and in this case (reports in this issue) there is too much of truth, apparently, to be turned down. I hope, therefore, that you will try it again.—Ed.]

AFTER READING with interest what Dr. Cross says about smokers, p. 813, I arise to make a few remarks. Dr. Cross says that, "without prepared fuel, or special fuel, any make of smoker will not hold its fire if left standing for any length of time." I don't know just how inclusive or exclusive that "prepared" or that "special" is meant to be; but with me any fuel that may be considered reasonably fit for smoker fuel—such as chips picked up from the woodpile, without any preparation—will burn in a standing smoker till burned out. [Just so here. Any fuel with us, unless it be positively wet, will keep burning in any of our smokers, kept right side up, providing, of course, it has been well lighted. A poor fuel may not ignite, and consequently may cease to burn, simply because there was not a *bed* of live coals. When a smoker has plenty of fire in the bottom of it I never knew one of ours to go out in the open air except for want of fuel; but any smoker, if put into an inclosed box where drafts are all shut off, may go out.—Ed.]

"ONE MAIN FAULT with the Crane and Corneil smokers is that the spring inside the bellows is too strong for nice working." Correct. That stiff spring makes the hand very tired if much smoking has to be done in the course of a day. But if the spring is too weak the bellows will not be opened by it; for unless you keep squeezing the bellows pretty hard it will slip out of your fingers and fall to the ground. I'll tell you what to do: Send to the manufacturers or dealers for a smoker with a light spring. If you insist upon it you can get it. Then nail upon the three sides of each bellows-board at the edges little cleats $\frac{1}{4} \times \frac{1}{8}$ inch or larger, and see how nicely it works. Don't trust to the groove cut in the bellows with its smooth rounding edges. It's the sharp edges of the cleat that count. Some day the manufacturers will learn to put on such cleats. [I believe, doctor, you are exactly right, and it will not be my fault if, in 1903, both of these features are not incorporated in the new smokers made by our company.—Ed.]

"THE CRANE has the additional fault of the valve, which I consider of no particular benefit." Why, doctor! That valve gives you the benefit of the full strength of direct draft without having smoke sucked back into the bellows, thus making the Crane more economical than the Clark.

"When well crusted with creosote it becomes a nuisance indeed." Right.

"Its position and manner of fastening make it a bad job at cleaning, and few people would fool with it." I suppose you

mean fool with cleaning it. One that has been in use here for several years has been cleaned just once this summer, and when cleaned it works just as well as new—simply a matter of taking off the bellows, taking out a few screws, and then it's an easy thing to make a thorough job of cleaning the valve. Takes time, but it's worth it to have a new smoker.

"THE SPOUT, being held on with a hinge, oftentimes does not fall properly on the barrel; and if hastily jammed down it will crimp open the barrel, so that it will always leak smoke at that point and never be a good fit again." Right you are, doctor, only you've hardly made it strong enough. After the thing gets sufficiently crimped and gummed up, you can't make the nozzle stick on at all, and most of the smoke will blow out at the joint. And yet I wouldn't like to do without that hinge; for then when it gets to be ill-fitting (as it will, hinge or no hinge) the nozzle will fall off some time into a hive just at a time when you are most anxious not to have it do so. I don't know the remedy. How would it do to have more of the nozzle telescope over the barrel, and have the telescoping part flare out wide at the edge so it couldn't by any possibility make a start in the crimping business. [We are making a new hinge and new snout which we hope will overcome both objections given above. Perhaps I ought not to tell tales out of school.—ED.]

"IS IT NOT the common thing that the queen is not found quickly, and hence the bees find her before the bee-keeper? If that is the case the queen should generally be found with a cluster of bees." Thus the editor, p. 800, speaking of clipped queens coming out with swarms. Replying, I should say that "in this locality" it is most decidedly *not* the common thing that the queen is not found quickly. I think I am safe in saying that in 19 cases out of 20 (my assistant says 49 out of 50) the queen is found before all the bees of the swarm have left the hive. Of course, I mean if the bee-keeper is on hand when the swarm starts. If not found quickly, you think "the queen should generally be found with a cluster of bees." May be she *should*, but she isn't, at least not "in this locality." Times upon times, when I have not been promptly on hand to see the queen issue, I've looked on the ground for that cluster of bees with the queen, but rarely found it. The queen had gone back in the hive without waiting for any cluster. [It is your practice, I take it, the minute a swarm is seen to come out, to rush to the entrance from which it is coming. It is the case with a good many that the swarm is not discovered till it is all out in the air. It hovers about for a considerable length of time, and finally some stragglers begin to go back to the old hive. This locates the hive from which it came. At that time there is liable to be, as I know from my own experience, bees crawling around

where the queen is at the entrance. Your locality and your practice seem to be a little different from ours.—ED.]



The fight is on! the giant Labor stern
Shows all his strength at last;
While locking horns with Capital,
Out goes the furnace-blast.

AMERICAN BEE JOURNAL.

Mr. Albert Gale, in the *Australian Bee-keeper*, makes a review of the only "funny" bee-book ever published. In speaking of drones, the author of this book says: "One by one they sail off into space, irresistible, glorious, and tranquilly make for the nearest flowers, where they sleep till the afternoon freshens and awakens them." Mr. York replies: "That the drones must sail off into space to reach the nearest flowers is amusing; that drones visit flowers at all is decidedly so; that they fall asleep on the flowers till the refreshing afternoon awakens them is irresistibly funny." Mr. York further says: "This is the same book that has been approved by others as thoroughly reliable in its teachings, being nothing less than Maeterlinck's *Life of the Bee*." Whatever may have been said by way of approval in this department concerning that book is now thoroughly expunged and withdrawn. It was a typographical error. The writer should have said the book was "thoroughly *reliable*." But still an intelligent reader will find some wheat among the chaff. Aside from bees the writer of that book has some good philosophy.

Dr. Miller thinks it will require about a quart of bisulphide of carbon to treat two or three thousand pounds of honey if it is rather closely packed in a room having tight walls. It costs 40 cents a pint, or 75 cents a quart. Some writers have told how they have had fire quite near this substance without its igniting. They'll repeat that thing just once too often some bright day when a draft of air brings the fumes toward the fire. It does not stop to burn—it goes off with a bang.

In an article on spraying, Mr. H. L. Jeffrey says:

There is a class of citizens in every place that are the worst criminals on earth. They occupy good positions in society, in the church, and in all organizations. They have strong influence, and they know they own the earth but have not yet fenced it in, and they are the vilest enemies to every occupation and citizen, but they are out of the reach of the law. The law punishes, not for the act, but for getting caught, and they do not get caught. To illustrate by a fact:

A certain minister in my vicinity found out that kerosene kills vegetation, and proclaimed broadly, "When an obnoxious plant is in my way, a half-pint of kerosene oil puts it out of my way."

Not long afterward, various shrubs and plants began to die that were offensive to various persons. They followed that minister's advice.

Another person finding that sweetened Paris-green water would kill flies and other insects, exposed it for that reason, and killed off 20 colonies of bees. Some time afterward it leaked out that, "I made up my mind those devilish bees had to be gotten rid of." The bees were the things aimed for, some of their honey was eaten, and the eaters were made sick.

The law does not reach that class of people, but they are everywhere.

Spraying really does more harm, as a whole, than it does good. I have worked at it, and I have studied it closely for more than 20 years. It does some good, but that good is limited.

I am sure Mr. Jeffrey casts no reflections on the clergy as a class; but it must be admitted that some of the most unreasonable and unreasoning men in the world are to be found among them as in all other callings. But that is nothing against what they are supposed to preach.



Mr. York quotes the following from the *New York World*:

Charles Zane, aged 11 years, died to-day from brain fever, superinduced by excessive cigarette smoking. He was ill ten days, and while delirious he went through the motions of holding a cigarette to his mouth and imagined he was blowing smoke from his nose.

And aptly adds:

It pays to bring boys into the world. But it doesn't pay to allow them to be killed off in that way. The "killing off," however, ought to be applied to the human hyenas that make and sell cigarettes and similar body-and-soul-destroying things. But it pays in dollars and cents, don't you know? That's the test now-a-days. What does a few thousand boys amount to if some one can make a few more dollars?

It takes G. W. Y. to write a big sermon in one short paragraph.



Concerning phacelia, Mr. Luhdorff says:

It is not only a good honey-plant for the bees, but it furnishes with its juicy green stems and leaves also a very excellent green fodder, which horses, cattle, goats, and hogs eat with the greatest relish. Cows and goats give, when fed with phacelia, great quantities of milk. The crops of seed are also rich, one acre (American measure) producing in Prussia 400 to 500 pounds of seed. It takes about 5 pounds of seed to sow one American acre. We recommend to all beekeepers and farmers to try this plant. The plant does well in almost any kind of soil. The seed can be sown similar to grain after the fields have been plowed.



COLMENERO ESPANOL.

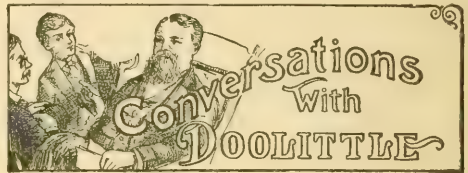
A German bee paper says one of the best ways to get rid of ants is to dig a hole down into their nests and drop in a small lump of gum camphor. The odor of it is so insupportable to the ants that they will fold up their tents and skip out. The only advantage camphor has over carbon bisulphide is its greater cheapness.



L'ABEILLE.

Several cases are cited in the September issue showing the value of honey as a means for the removal of warts. One child whose hands were covered with them was cured in a short time. Honey was rubbed over the hands thoroughly, after which they

were covered with gloves for a time. Another writer removed them from the face of his daughter in a similar manner. Her face was rubbed with honey, and well bandaged. In ten days the trouble was out of sight. It is cheaper than some drugs, and not at all dangerous.



COMBS ATTACHED TO SEPARATORS.

"Good evening, Mr. Doolittle. The evenings are beginning to be of considerable length."

"Yes, the days are much shorter than they were, Smith, and it reminds one that winter will soon be here. It hardly seems as if we had had any summer, it has been so cold all the time. What are you busy-ing yourself at these days?"

"I have been crating the little honey I have, for a few days back, and I find many more combs attached to the separators than usual, so I thought I would come over a little while and talk with you about the matter. How can we prevent the bees from attaching or fastening the comb to the separators?"

"Did all of your colonies attach their combs to the separators?"

"No. Some of them gave as perfect combs as I ever saw. But why did you ask this?"

"So I might know how to answer you; and I would say, in short, put each colony in just the condition as were those which gave those perfect combs. Perhaps this is not just the answer that should be given in your case; but I often think such an answer would be the best reply that could be given in the majority of cases, for it would set the questioner, having the trouble, to studying into that which would make him an intelligent bee-keeper by creating in him a desire and a determination to master every problem which might come before him."

"Well, that is outspoken; but my desire is strong enough so I'll forgive you if you will only tell me what you can to help me."

"I'll do the best I can by telling of some of the things which contribute toward an attaching of combs to the separators, which things we should avoid if we would have perfect combs. The greatest cause for this trouble lies in not having the hives stand level, for the bees always build their combs perpendicular, especially in the case of thin tall sections, as with such it requires very little out of the perpendicular for the lower end of the comb to come near enough to the separator for the bees to build brace-

combs out to the separators to hold each comb in place, as they nearly always look out for bracing in this way where the septum of the comb comes within $\frac{3}{8}$ inch of any part of the hive."

"Must the hive be perfectly level each way?"

"No. It is not necessary that the hive be leveled both ways unless the combs in the brood-chamber run in an opposite direction from those in the sections; but it *is* necessary to have the hive level in the direction of the open sides of our sections if we would produce the nicest of section honey."

"Do you do this leveling with a plumb, or will the eye be exact enough?"

"It is not well to do this leveling with the eye; for unless the eye is trained in this matter it is little better than guesswork. I was over to Mr. Brown's the first of the summer, and he thought hives could be leveled with the eye; but a level showed that some of them were two inches out of the way. I use a spirit-level for this work; but in the absence of this I would use a plummet, as you suggest."

"It hardly seems that my hives were enough out of level to cause this trouble. I will try a level on them to-morrow."

"It may be that it was not; but it was in the starters, for, next to having the hives level, comes the matter of how the starters are put in the sections. If in a slipshod way, so that they pull off or fall down from the weight of the bees before they thoroughly attach them to the top of the sections, poor combs and many braces will be the result."

"I do not think that many of mine fell down, though in a few instances I was quite sure that this was what caused the trouble."

"Then if care is not taken to have these starters run true with the sections they will be angling enough so that the bees will swing the edges of the combs around and attach them to the separators near the bottom instead of to the sides of the sections, thus making a nasty mess when we come to remove the separators. Even where full sheets of foundation are used, some are so careless in putting them in that the edges are nearer the separators than the sections, when placed on the hives, when the bees will attach them to the nearest point, as they always do, for they care not as to the salable quality of their product. This is not what they are working for, and it is the bee-keeper who must guide aright if he wishes the salableness in perfect order. But in full sheets and a level hive we have the greatest prevention against these brace-combs."

"Do you think it pays to use full sheets of foundation in the sections?"

"Latterly I have come to the conclusion that it does not pay to try to dispense with full sheets of very thin foundation for each section, only as we have full sheets of drawn comb to use in place of the foundation. But the full sheets of foundation will

not remedy the trouble where the hives are much out of level, for the bees seem to have a way of building or drawing out their cells on the side of the foundation furthest away from the separators first, which tends to curl the lower end of the foundation around nearer the separator, till the bees attach it to the separator instead of the bottom of the section."

"Well, I see that here is a part of my trouble, as well as having some of the starters fall down. I think I can remedy some of these things next year, if not the whole trouble."

"Next in order comes the putting-on of sections while the colony is too weak to occupy them fully, these weak colonies commencing on the bait sections first, and then spreading out from there in either direction; but as it is the warmest and most homelike on the sides next the center, they draw out the cells near the center of the foundation, up and down, first on this inside of the foundation, which causes it to curl at the sides or edges, till it comes nearer the separator than to the sides of the sections, and thus it is attached to the separators instead of the sections where it should be."

"Well, there! That accounts for more of my trouble than any of the rest, for I noticed that more of these attachments were found in those supers which had only a few completed sections in them than in those where all of the sections were finished. But is there any other reason?"

"Lastly, this trouble may come from putting the sections on too early in the season, before the honey harvest commences, where the colonies are strong enough to enter the surplus apartment, or allowing them to stay on the hives during a long period of scarcity, when the bees, not having any thing else to do, amuse themselves in gnawing the foundation, which results in less perfect combs than would have been the case had a good honey-flow come on immediately after putting the sections on the hive. Such gnawing more often results in the twisting of that part which is left than otherwise; and in thus twisting, some portions of the foundation come nearer the separators than the sides to the sections, when brace-combs are the result. This putting-on of sections too early in the season can be easily avoided by studying our location as to its flora; but as we can have no control of the secretion of nectar or the periods of scarcity coming after the sections are on, this part of the matter can not well be overcome."

"I am very glad I came over, and hope to profit in the matter another year."

"By avoiding all the things which tend toward these brace-combs being attached to the separators, we can have perfect combs, and of the highest quality, all other things being equal; and I have so far overcome this matter that hardly one section of honey in three hundred is defective along this line."



Our Symposium on Shook or Brushed Swarms.

A Shook Swarm Not Materially Different from a Natural One, and Avoids the Demoralization of the Whole Yard; Necessary to Smoke the Bees before Shaking; Under what Conditions Bees will Build Worker Combs; Valuable Suggestions from a Practical Bee-master.

BY H. R. BOARDMAN.

When the bees are taken from a colony, whether they are brushed or shaken off the combs, or smoked or frightened out by drumming and jarring the hive, or by whatever means they are gotten out, they become artificial swarms, and it simplifies matters a good deal to call them such. If the colony from which they are taken has already made preparations to swarm they are in no way materially different from a natural swarm, except, possibly, they may contain a greater proportion of very young bees; and I know of no good reason why both the swarm and old colony may not be as normal in condition as in natural swarms.

While this method seems to be coming to the front just now, it is no new thing—in fact, it is quite old with me. I have practiced it to some extent for a good many years—not on all my colonies, but only on those that were making preparations to swarm, or some small out-apiary that I could not well afford the time to watch. When the apiary was large, and much swarming expected, I have usually noted those most likely to swarm.

Then in the afternoon, when the yard was quiet, and little or no swarming expected, I have anticipated their plans a little by artificially swarming them, and in this way avoided much annoyance, confusion, and demoralization of all the bees in the yard that a swarming-panic might create.

It is important that the bees should be gathering honey and secreting wax in order that their work of comb-building may be begun at once in the new hive, unless feeding is to be resorted to, in which case it is better to give the colony at least one liberal feed 24 hours before they are swarmed. The colony to be swarmed should be strong in bees and brood, and have a laying queen.

Smoke the bees vigorously; turn the hive a quarter around on to a stand just back of the old one. Set in its place another hive with a full set of empty frames with only comb starters. Combs will be more perfectly built if the frames are closely spaced.

I use mine in an eight-frame hive; smoke the bees again, give them time to load up with honey; open the hive, and find the queen and put her into the new hive after shaking a few bees in, then take out the combs and shake the bees in front of the hive and let them run in the same as in natural swarming. I prefer to shake the bees off the combs—well, because it is the way I am used to, and it is easier and quicker for me to do it that way. It is true that a little raw nectar will sprinkle out among the bees sometimes when honey is coming in rapidly; but I never regarded that as a very serious thing. The bees would very soon clean it up and use it to advantage. I prefer to leave a few bees, especially if these colonies are to be depended upon to raise queen-cells. Then they may be shaken out again, being careful to leave enough bees to protect the hive against robbers.

In order to get a strong working force I have sometimes united the bees of two colonies, shaking them together in one hive, and also would unite the two old colonies by tiering them up, one on the other, and give them one of the old queens.

It makes less exposure of the bees and honey to drum or smoke the bees out directly into the hive in which they are wanted.

Later in the season, when no honey was being gathered, and the bees were disposed to rob, I have often practiced this plan, sometimes driving three or more swarms at the same time. A little experience enabled me to get the queen almost without failure. Strong swarms with good prolific queens are important factors in getting good work in comb-building. Favorable weather and a steady honey-flow are also important, but this we can not control.

A strong swarm with a good queen will usually build worker comb so long as the queen is able to keep well up with the comb-builders, and until she returns to refill the combs that are being vacated by the first-hatching brood. At this time, if the combs are not finished, and honey is coming in, more or less drone comb will be likely to be built for store combs.

Bees under the swarming impulse are disposed to build more or less drone comb; but when the swarming impulse subsides, the impulse to build drone comb also subsides. In artificial swarms the desire to swarm seems to be entirely satisfied, and there is very little disposition to build drone comb.

The character of the comb-building depends very much upon the queen, and queens are variable.

If I find brood in the sections I feel sure it is my own fault in putting the supers on too soon, or in stampeding the bees into the supers by careless handling afterward. The queen will not leave the brood-nest after she is well established in egg-laying unless some unusual disturbance has caused her to do so. I have never found it necessary to use perforated zinc excluders to prevent the queen from going into the supers.

At the close of the season, if I have more bees and combs than I want I unite the bees back and render the poorest combs into wax.

I have now a series of experiments with nine artificial colonies in building natural combs by feeding under different conditions. These bees were shaken out of average colonies with average queens upon empty frames with narrow starters, some with and some without wires; some of the combs are now nearly complete. The most nearly perfect are in wired frames; but some without wires are nearly as good. Wires are perpendicular, and absolutely prevent sagging. There is practically no drone comb in any of the nine colonies. The wires answer as guides in building the combs. They should be waxed.

East Townsend, Ohio.

CUBAN SHOOK SWARMS; SHAKING A SOLUTION OF THE FOUL-BROOD SITUATION; WHEN AND HOW TO SHAKE; THE EFFECT OF SHAKING ON BLACKS, CARNIOLANS, AND ITALIANS; SHAKING GIVES PERFECT CONTROL OF SWARMING.

I have made several hundred of them this year, and *am still shaking*. There are two reasons for this—to control swarming and to keep clear of foul brood. On account of the latter, as well as the high price of foundation, I use starters this year entirely.

Last year I used full sheets of foundation, and I can not see that they are of enough advantage to pay the difference in cost, though perhaps they would in a colder climate or a shorter honey-flow. There is a difference between shook and brushed swarms when some bees are left. In brushing you get those that the brush hits, and leave those that it misses, while shaking takes those that have the poorest hold of the combs, and leaves those who hold on better. The result is, in the latter case, that the queen is about certain to drop off, while the bees that are left are the young nurse bees that are wanted to care for the brood. Even in this hot climate there must be bees enough left to care for the brood until some bees hatch.

In shaking, make a quick vertical move, and no honey is jarred out if not too violent; but if the combs are slanted the honey on the lower side is spilled. This, however, does no great harm, for it stays with the bees on the old stand, and they will look out for robbers. I smoke pretty well so the bees fill themselves with honey.

The old hive should be filled with frames about as fast as the combs are taken out, to make a place for the bees to cluster, or they will run out of the entrance or boil over the top, and perhaps lose the queen.

The best time to shake is toward night, for the bees are not so apt to swarm out. In case a frame of young brood is left, there is very little danger. If they do swarm out they are not apt to run away, for they will usually stay several days before leaving the limb.

Blacks are much more apt to swarm out than Italians. Carniolans build comb faster than the others, and build up quicker; or, at least, those in one of Coggshall's apiaries here do. The brood is to be put into a new hive and set facing away from the swarm. I stop the entrance with green grass; and by the time the grass wilts the colony is able to care for itself. In filling the hive with brood I put in ten full frames, the combs of honey or those with but little brood being put either on other colonies or extracted. This makes less increase and stronger colonies. Sometimes there will be brood from three different hives to make one.

I give a queen-cell at the time of shaking; then by the time the brood is all hatched there is a young queen laying. This colony can then be "shook" in its turn, but, of course, there will be no brood, so the bees are all left.

I melt up the combs for wax after extracting what honey there is. By this means I hope to keep clear of foul brood and to get a lot of wax. I consider "shaking" the most valuable thing that has come up in the bee journals for a long time, for it gives perfect control of swarming.

Artemisa, Cuba.

HARRY HOWE.

SHAKING PREFERABLE TO BRUSHING; SHAKING FOR REVENUE ONLY; ADMIRABLE FOR OUT-APIARIES; BEST TIME FOR CLIPPING.

In answer to your inquiry concerning brushed or "shook" swarms I will say that I have practiced this plan for years, more or less, as the best interests of my business were indicated from year to year. In the beginning I will say that, in my judgment, "shook" swarms are much more preferable, not in name but in fact, to brushed swarms. It is a fact patent to all who have handled bees that, in shaking a comb, it is the oldest bees that leave the comb first, so it is possible for the apiarist to leave the combs protected by bees that will stay where he puts them. Hence I say this condition which is so desirable can be secured better by shaking than by brushing all and then returning a part to the combs without proper regard to age.

I have never practiced shaking off all the bees, neither would I advise it, for there are generally a few pilfering colonies in almost any apiary that would be attracted by the smell of new honey left on these combs, and would gladly take advantage if left entirely unprotected.

I will emphasize the fact that the combs of brood should be left well protected; but as to just how many bees to leave would be indicated at the time to the operator according to the amount of hatching brood and the condition of the weather. The hive containing the brood is carried to a new stand if intended as increase; but if the intention is to unite with the parent colony at the end of 21 days, then it is set close beside it with the entrance at right angles.

Some objections to "shook" swarms have

been raised—that the new honey will shake out. In my opinion, swarms should never be shaken unless the new honey does shake out; and the more so, the better I consider the conditions are for this plan of artificial swarming. When the honey flies out badly I shake them directly on to the top-bars of the new hive, dousing the bees with as much honey as flies out. Remember, the new swarm receives all the flying bees of the old colony. They will soon cluster and clean themselves up, and be in that plethoric and fat condition so necessary to the secretion of wax—a condition they must soon get into if they are driven on to starters only as I do here when running for comb honey.

This plan I consider the most sensible one for transferring from box hives or crooked combs, only we are compelled to drive instead of shake, and the only plan by which we can successfully cope with foul brood.

If this plan is diligently followed through the honey season with all colonies that show even one cell of foul brood, we do not come up to winter with a lot of colonies that must be burned to prevent the spread of the disease. A colony that develops the disease in the fall after the honey season is past will live until the beginning of the next honey season in fair condition, when it can be shaken, hence the great loss from foul brood is found only among careless beekeepers.

Now, when it comes to shaking swarms for "revenue only" I will say, as I have said before, I take Josh Billings' advice about setting hens: He says, "Never set your hen till she wants to set;" so if my bees are contented to go on storing honey I never shake a swarm till "she wants to shake," and then I shake her with a vengeance, so there will be no second swarming.

With me this plan works admirably in running out-apiaries. If no increase is desired, two can be shaken together, and the brood from two united, thus securing powerful colonies.

With regard to the value of a "shook" swarm as compared with a natural one, I will say that, if you have followed Josh's advice, you have a swarm almost identical to the natural one, only it receives all the flying bees instead of part.

In practicing this plan in out-apiaries I examine every six days, and shake every colony that has eggs in the cell cups. Of course, this makes some swarms a little premature, say from four to six days before the swarm would emerge by the natural plan; and unfavorable weather conditions sometimes make you wish you hadn't; but it also makes the natural swarm wish they hadn't.

This is the only time I do any clipping of queens, and I always clip them when I make a "shook" swarm, for I think they are a little more prone to abscond if they meet with bad weather than are natural swarms, so I fix them so they will be com-

pelled to go "on foot" if they go at all. On the other hand, if the weather is fine and the honey-flow good I think they are less liable to abscond than are the excited, uneasy, natural swarms.

I have generalized, perhaps, too much in this article, but can give the *modus operandi* if you desire. M. A. GILL.

Longmont, Colo., Sept. 10.

"SHOOK-SWARM" METHOD VALUABLE FOR
OUT-APIARIES; A PLAN TO UNITE BEES
AUTOMATICALLY; SOME IMPORTANT
POINTS TO BE OBSERVED.

The expression "shook" swarm is so expressive, so catchy, and so popular, that it is here to stay, in spite of grammatical rules, and Dr. Miller too. Here's what I know about them:

The method is peculiarly adapted to the production of comb honey in out-apiaries, with no one present to hive swarms. When the first flow begins we drive to the out-yards and quickly inspect all colonies for indications of swarming. Our hives are mostly in pairs, side by side. Here is a colony that has queen-cells started. We will call it hive A, while the one at its side we will call hive B. Hive A contains a very strong colony. We move it to one side and put in its place a hive containing a frame of brood and 7 frames with half-inch starters. On this a queen-excluder, and above this one or two supers containing several bait-combs, or, better, a super, bees and all, from some colony already at work in the sections. Now, the bees are swiftly shaken from the brood-combs of hive A, in front of the new hive; lastly, dump all the bees from the old hive to make sure of having the queen in the new colony. Now remove hive B to a new stand, placing on it the brood-combs taken from hive A. This throws the working force of both colonies into the shook swarm, which will do good work for some time. Seven days later, hive B, having a double quantity of hatching brood, will be very strong. Shake about half of the bees into the shook swarm. If the flow continues, repeat this seven days later. Hive B will give a good crop of extracted honey, or a shook swarm may be made from two such colonies, if the continuance of the flow makes it desirable.

I am now experimenting with a plan to unite automatically the bees hatching from the old brood-combs with the shook swarm. Here is a plan used in Colorado, advocated in the *Rocky Mountain Review*:

A super-cover, similar to the Porter escape-board, is placed over the super containing bait combs. In the front end I cut out a slot three inches long and one inch wide. A piece of wire cloth is tacked over the under side of the slot. This is to give ventilation to the story containing the remainder of the brood and bees which is now set over the super-cover, and also to furnish an exit for the bees, as fast as they hatch, to pass out of where they enter a chute

made of lath that leads to within $\frac{1}{4}$ inch of the hive-entrance. When they return honey-laden they go directly into the lower chamber where the queen is, and, there being no drawn cells to store their treasures in, they are forced to enter the supers at once. In 21 days all the brood will have hatched, and the bees have joined the busy force below.

I find the above plan of Mr. Evans objectionable, as the nurse bees escape too soon, leaving much unsealed brood to dry up for want of care during the first nine days, or until all brood is sealed. Perhaps this objection may be overcome by inserting a small piece of perforated zinc in the super-cover, although I fear that the bees might then store honey in the combs as the brood hatches. Please ask Dr. Tinker about this last point.

If neither hive A nor B is very strong in bees, we shake off most of the bees from both to make the shook swarm, as such swarms are not satisfactory unless very strong. In this case we would, of course, leave one of the queens with the brood.

The shook swarm is one (not the) solution of the swarming problem in out apiaries run for comb honey. This and the Aikin method will be used almost exclusively in our apiaries next year. When using the eight-frame L. hive for shook swarms a dummy may well be used to take the place of a frame or two. With the Heddon hive two sections must be used for the first few days or there is danger of desertion. When this danger is past, remove the lower case. However, if you find that shook swarms in a single shallow brood-case are inclined to store pollen in the sections, then when the upper case is full of combs replace the lower case with one containing full sheets of foundation. The bees will gradually work down into it, and work in the supers will go on as before. This I owe to L. Stachelhausen. The giving of one frame of brood is important, whatever the hive used, to prevent pollen in the sections, and to keep the bees contented. In this locality this frame of brood has not caused swarming out, contrary to the experience of Mr. Stachelhausen. With a brood-chamber of five or six L. frames capacity, full sheets of foundation may be used if the bees persist in building drone comb.

During a slow honey-flow we do not like the shook-swarm plan, as the queen, if the bees are Italians, will be crowded out, too much drone comb built from starters, and a very light crop will be the result. If a colony (with no thought of swarming) is doing excellent super work we would not think of making a shook swarm from it. We wire all frames for shook swarms. Note these points:

1. Shook swarms must be very strong.
2. A comb of brood will usually obviate danger of pollen in sections.
3. Supers must contain bait combs, or, better, be taken from colonies well at work in the sections.

4. In the arid region, with its cool nights, brood from shook swarms must always be under the care of a large force of bees, to prevent loss by chilling.

5. Last, and of great importance, the shook swarm must be strengthened several times during the flow. E. F. ATWATER.
Boise, Ida.

VALUABLE INFORMATION CONCERNING THE SHOOK-SWARM METHOD.

Evidently the time is now ripe for this method to become thoroughly practical. I practiced the method years ago when my colonies numbered from 100 to 125. I have advocated the method from the time of its discovery, and I wrote it up for *The Indiana Farmer* under the caption of "Swarming without Increase," and yet I have known of very few followers. Just to think of a swarm issuing and leaving a crate of unfinished sections, with the result that the season is exhausted before the parent hive is able to finish the sections! Why did the "shook" method fail to become popular long ago? I have returned swarms to the old stand, giving them the unfinished super, and frames with narrow starters, and, after brushing off every bee from the remaining brood, I have obtained better and more rapid results in the super than I was getting before the operation. I have always found that a queen-excluding honey-board was very essential, and the only objection to the entire method is that for a few days some pollen will be stored in the sections.

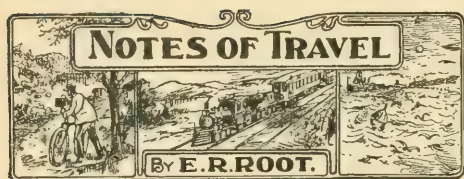
I have always disposed of the remaining brood in two ways—by strengthening weak colonies and by tiering up over an excluder for extracting. I have tiered as high as five stories, and it seemed to me that such colonies contained a barrel of bees. In such cases I allowed only three or four combs of brood in the lower chamber, filling the remainder of the hive with empty combs or foundation in order that the queen might have plenty of room. As fast as the brood hatched in upper stories they filled the empty cells with honey, making the way possible for a large yield, and greatly improving the results from the hives from which the brood was taken.

A few, in attempting this method, have allowed one or two combs of brood to remain in the brood-chamber. This is fatal to the results. The brood-chamber must contain frames with narrow starters only. The bees will proceed to build comb fast enough for the queen; and the new honey must necessarily be stored in the sections.

"This great country of ours" is fairly covered with a sod of white clover, and next year promises to be a glorious one for beekeepers. I hope the "shook" method will be adopted by many, and thus increase the profits. WALTER S. POWDER.

Indianapolis, Ind.

Continued on page 863.



NORTHERN CALIFORNIA AND OREGON; SOME
OBSERVATIONS ABOUT MOUNTAIN PEAKS;
A FEW FIGURES REGARDING THE
LUMBER PRODUCTION OF THE
LATTER STATE.

Leaving Nicolaus, where we stopped to look over the carpet grass and to consider some of the fearful effects wrought on the country by placer mining, I took the train northward and made no other stop until I reached Portland, Oregon. I did not skip over the northern portion of California because there was nothing there in the bee-keeping line, but because of the limited time at my disposal, making it necessary for me to make one long jump to Portland. But I can not forbear making reference to the beautiful scenery on the way; and how, as we approached Mount Shasta, in the extreme northern part of California, we could see that peak, faintly at first, then more clearly, more grandly, until we were at the very base of it; and as we passed on beyond that royal old mountain it still kept in view. This is true of several other peaks of more or less prominence. Before we arrived at Portland the peaks of Mount St. Helen and Mount Hood stood up clear and distinct. In fact, I know of no prettier mountains to be seen in the United States than the two last named. While not so high by considerable as some other peaks, they stand up grandly and alone, clear above the surrounding mountain country; and they were nearer to my childhood's conception of how a *real* mountain should look than anything I had ever seen. And, speaking about mountain scenery in general, a tenderfoot of the East, before he has seen much of this great rugged mountain country of the West, is apt to form the impression that a very high mountain stands up like a great shaft in the air, towering far above the surrounding country. With a few exceptions this conception is entirely erroneous. Some of the highest peaks in the United States are almost completely submerged amid the mountainous country all around about them—so much so that their great altitude is not apparent; but when we come to look at the summits of Mount Hood and Mount St. Helen we note a distinct difference. They are great cones capped with snow that stand upward clean and beautiful above the surrounding country; and as one looks at them from a distance of fifty miles he appears to be looking at something that is far higher than any thing he has seen before; and yet they lack several thousand feet of being as high as some of the peaks in Colorado and California.

I stopped in Portland for only a very short time. I found the country, as I had expected, neither hot nor cold. The temperature was delightful and pleasant. I had heard that it rained in Portland every day in the year, and this daily program was in nowise changed while I was in the city. But the rains come and go like our April showers here in the East—a light little dash that soon passes off, followed by the sun in all its glory as it plays peek-a-boob behind the clouds. I believe it is not necessary, at least during some seasons of the year, to carry an umbrella; for these little light sprays between, of but a few minutes' duration, can at most dampen the clothing, which soon dries off.

Bee-keeping throughout Oregon, so far as I could discover, is not carried on in the extensive way that it is in Central and Southern California, in Arizona, Colorado, and Texas. The apiaries are smaller, and the business, as nearly as I could judge, is not nearly as profitable, although I believe it is more sure of uniform results than in Southern California. As a honey State it would rank with Michigan and Illinois.

I was pleased to note the beautiful green, at least in the northern parts of Oregon. This was in delightful contrast to some of the arid portions of the West where I had been traveling. Clover and the natural grasses of the East were growing luxuriantly.

I met a number of local bee-keepers in the vicinity, particularly the supply dealers—among others Buell Lamberson's Sons and the Portland Seed Co., both of whom handle supplies. During the short time I was in the city I was entertained most hospitably by representatives of both companies and by some of the local bee-keepers who came in to meet me on the evening of my departure. I should be glad, if it were a matter of general interest to bee-keepers, to tell of the beautiful scenery up the Columbia River, which it was my pleasure to take in and enjoy, the general magnificence and grandeur of which, I am told, surpasses that on the Rhine. I should also like to tell something about the salmon fisheries, but all of this would be of little interest to our friends who are getting their bread and butter from the bees.

But it may be a matter of some interest to know that the time may come, and that within twenty or thirty years, when the lumber for all their hives will have to come from Oregon. The timber of Northern Michigan and from many portions of Canada is already very scarce; and when this supply is exhausted we shall have to look to California and Oregon for our supply of bee-hive boards. At the present time it is estimated that Oregon contains a much larger area of forest than any other State in the Union. So much is there of it, in fact, that the lumber is wasted. Some of the trees are cut 20 feet from the ground because at the butt they are too large to handle with the saws at the mills. Instead of

using a modern band-saw that will cut a kerf of only a sixteenth or the thirty-second of an inch, the mills use large circular saws that will cut a little faster, but which will cut a kerf five-eighths wide. Such a wanton waste seems almost wicked. Late statistics show that there are 235 billion feet of standing timber within the borders of Oregon; but there are 300 immense mills that cut in one season 670 million feet. At this terrible rate of slaughter and fearful wastefulness by using thick saws and leaving stumps 20 feet high, how long will it be before Oregon will be reduced to the condition of Michigan, Maine, and other States that once had lumber to burn? The State of Oregon should see to it, in the interest of future generations, that such wasteful methods within her own borders are stopped, and that right speedily.



REGARDING brushed swarms, several lay stress on the fact that bees should be smoked, drummed, or jarred in order to make them fill themselves with honey. In forcing a swarm we ought to bring about, as nearly as possible, the conditions that exist in a natural swarm. When nature sends out a swarm the bees fill themselves with honey; therefore when we force them we must make them store up a sufficient supply so that, when they begin to work in starters in the new hive, they will have enough to spare to commence comb-building in earnest.

RANCHING ON A LARGE SCALE.

IMMEDIATELY following the Denver convention I made a trip into Central Nebraska and there visited one of the most extensive ranchers in the world—Mr. H. D. Watkins, of Kearney. Mr. W. has 10,000 acres of land, 3000 of which are in alfalfa. You just ought to see those immense fields of bloom; the thousands of tons of hay in stacks; and how things are done in a truly wholesale way in the great West. Well, I am going to give you a chance to see. I took two dozen photographs, and later on I will give our readers something of an idea of alfalfa-growing on an immense scale. And here is a rancher who proposes to go into bee-keeping also on an immense scale. Just imagine, if you please, 3000 acres within bee-range, and within control of one man, then think what an apiary or two could do.

NOMENCLATURE; FORCED SWARMS.

ELSEWHERE Mr. H. R. Boardman, referring to shook or brushed swarms, suggests that we call them "artificial" swarms; for

whether they be brushed, shaken, smoked, frightened, drummed, or jarred out of the hive, they become, in a certain sense, artificial, and therefore he would recommend the name *artificial* swarms. This term, it is true, is more comprehensive, but, unfortunately, it has been associated for many years in the text-books with the plan of simple dividing; i. e., taking out one set of combs from the hive, and putting them bodily, bees and all, into another hive on another stand. I would suggest that we use the word "forced" swarms, for that will describe either shook or brushed swarms, and avoid at the same time the ungrammatical adjective "shook." When we get the bees out of the hive by any of the processes named we *force* them out—we *make* them swarm, and if reports are to be believed we make them think that they have actually swarmed, and that, therefore, they must get down to business.

THE DENVER CONVENTION; A BRIEF REPORT OF THE PROCEEDINGS; MORNING SESSION, FIRST DAY.

I ARRIVED in time to hear Dr. Miller discuss the question, "The most hopeful field for the North American Bee-keepers' Association." The doctor did not really know which was the most hopeful field. A lot of good, he said, had been done by the Association in fighting the adulteration evil, and he hoped it could do much more. One field was in the line of what the general government could do for apiculture. He referred to what had been brought about for all the different branches of agriculture *except* bee-keeping; and then he stated that the United States was an exception to all the civilized countries in the fact that it did not give more substantial aid to apiculture. He was thankful personally that the government recognized us enough to appoint an Apicultural Investigator; and while this was good as far as it went, it might do more by placing at that official's disposal more funds by which certain lines of work could be carried out.

He believed that the Association should help individual States to get foul-brood laws—not that he believed it should pay all expenses of a lobbyist, but he thought it might offer at least small pecuniary aid, under certain reasonable restrictions.

Again, honey was a fine article of diet, and the Association might do a great deal to bring before the general public this fact by getting leading articles printed through the associated-press reports. Finally, there ought to be a closer connection between this Association and the government at Washington. Prof. Frank Benton, Apicultural Investigator, was doing a good work; and he hoped that he might tell us more about what he is doing.

The response to this was by Mr. E. T. Abbott, of St. Joseph, Mo. He spoke of the fact that some bee-keepers and some farmers do not succeed; and one of the reasons for this was ignorance; and he felt

that the Association could do a great deal of good by spreading such a lot of information from one side of the continent to the other as would do away with a great deal of this ignorance. Another factor that stood in the way was indifference. Men having natural ability, finely equipped in point of physical strength, seemingly have for a motto, "Let 'er go; we have enough to live on." If one shut his eyes, and put his thumbs behind his suspenders, "she" will "go" and nothing will be done. Such indifference one may find all over the country. Mr. Abbott pointed out several lines of work that could be done by the Association, but it needed men of nerve and determination who will undertake it with enthusiasm, without regard to result. There had never been a great reform unless some one was willing to lay himself on the altar. Ever since the day that Jesus of Nazareth cried out on Calvary, "It is finished," the work had been finished by self-sacrificing people who were willing to die, if need be, for the work they had in mind. At the close of this, Prof. Benton, Apicultural Investigator, who was present, was asked to tell something of his work, which he did. His first effort, he said, had been to secure the giant bees of India. This was set aside for the time. In the mean time the Department commissioned him to prepare some pamphlets relating to bee-keeping. These were issued by him in the form of bulletins, which had since gone through many editions. A great deal of his work was to answer inquiries that are sent in to the Department regarding the subject of bees.

Of late he had been importing various races of bees, and placed the queens in various apiaries throughout the United States to be tested, mention of which has already been made in the journals. He had been testing all the known systems for rearing queens, and the results of his experiments have been duly recorded. In the line of future work he thought the government might be induced to make the statistics relating to bee-keeping more exact, for those now issued were not entirely reliable. The government could send out the blanks, which could be returned filled out, from which reports could be summarized for the general bee-keeping industry. In conclusion he stated that he would be glad to receive suggestions as to how he might make his work more useful to bee-keepers and to the Association. Subsequently a resolution was adopted, endorsing Prof. Benton's work, by the convention as a whole, and praying the Department of Agriculture to enlarge the scope of his work.

At the close of the discussions following Mr. Benton's talk, Mr. Taylor, Superintendent of the Agricultural Building of the Universal Exposition at St. Louis, was introduced to the convention. He gave some idea of what said exposition would be, by saying that the management had ten times as much money to spend as the Pan-American, and he hoped bee-keepers would not

be backward in saying how much space they would require and what they would expect that exposition to do for apiculture. He had come to receive suggestions, and would be pleased to hear from any one at the meeting. More anon.

THE SHOOK-SWARM SYMPOSIUM IN THIS ISSUE; POSSIBILITIES THAT ARE SAID TO ACCRUE FROM THE PRACTICE.

IN our last issue, and again in this one, we have collated a series of articles on the brushed or shook swarm method of handling bees. It is a little surprising, not to say amazing, that so many have been using the plan, and all, with one exception, report it a success for controlling swarming for producing comb honey, for curing foul brood—in short, putting the question of swarming at a time when the apiarist can handle it when he has the most leisure, and can do it himself without hiring extra help.

There have been comparatively few articles on the subject till quite lately. Two years ago Mr. L. Stachelhausen—see page 840, Nov. 1, 1900, first brought it to the attention of American bee-keepers in such a way that they began to grasp and did grasp the value of the shook-swarm method so persistently advocated in Germany. It is evident the article made a deep impression, far and wide, if we may judge from the number who read it and have since tested the plan for two seasons, and are now so enthusiastic that some are ready to cry out "Eureka!" because they believe the long-looked-for solution of the swarming problem with *small* brood-chamber has come. Whether or not we have reached that most desirable goal I will not pretend to say. But there is some evidence before us that seems to indicate very strongly that some have "got there" and are reaping the benefits, both in the amount of comb honey and in the matter of reducing the labor. Let us review briefly some of the results claimed:

1. Swarming can be controlled at out-yards with small brood-chambers, when run for comb honey. This is of tremendous importance, if true.

2. A brushed swarm may be stronger and produce more comb honey than a natural one, because the former may have *all* the flying bees, and subsequently receive, at a second drive, the brood that is hatched from the parent colony. If reports may be believed, such a powerful force of bees in one brood-nest means a larger yield of comb honey.

3. It appears that starters are just as good as full sheets of foundation, under some conditions at least. If this is true, it will save buying some brood foundation. If a young queen is in the hive, and the supers are put on soon enough, it is asserted that worker brood will be reared about as fast as the queen can take it. But suppose that drone comb is built out instead of worker, no great harm results, it is argued;

for such comb can be cut out and melted up, for every one knows that wax sells at a good price; and some there are who believe that wax and comb honey can be produced simultaneously, with profit and to advantage.

Yes, it has even been urged in times past that, in a heavy honey-flow, bees will secrete wax *involuntarily*; that if wax scales are not used in comb-building they will be wasted. The inference is, that the brushed swarm with foundation starters can and does utilize this surplus wax. If this be true, the foundation bill can be cut down seventy-five per cent, and, in addition, save wax scales.

4. Another incidental result—that pointed out by Mr. Howe in this issue—is that foul brood can be kept under control; for the brushed-swarm plan has some of the principal features of the McEvoy treatment of curing this disease. I believe there may be something in this; for years ago in our own yards we cured something like fifty or sixty colonies of foul brood by merely shaking the bees on frames of foundation. Then the plan of brushing the swarms, or shaking them, will hold either foul brood or black brood in check, and perhaps cure it altogether in localities where the disease is raging.

But there is one question that still remains; viz., "Does the brushing or shaking of bees into new quarters put them in that *mood or condition* where they *think or feel* that they have actually gone out into the wide world, and found a new home, the same as a *natural* swarm?" From the evidence in hand it would seem that the new method of *forcing* swarms has the same effect on the bees, to all intents and purposes, as the old method of letting the swarms come out *ad libitum* on Sunday, or wash-days, at inconvenient times, when the master of the house or the boss of the bees "has gone to town." If—understand, I do not make the claim myself—swarming *can* be brought about at convenient seasons, when the bee-master himself can perform all the work; and if such swarms go to work contentedly and behave in all respects like a natural swarm, then we are utilizing one of the most important discoveries that have been brought before the bee-keeping world for many years. I call it a *discovery*. I do not mean by that that it is something that has recently been brought to light by us, for, if I am correct, Gravenhorst, years ago, began to talk through his own periodical in Germany about the possibilities that could and did accrue from the treatment.

In all the foregoing I have suggested some wonderful possibilities. Now, please understand me that I do not individually claim that the swarming problem is solved—that more comb honey can be produced, nor am I sponsor for some of the other claims. I am only setting forth briefly some of the points suggested by our correspondents; and I am hopeful enough myself to believe that some of these good things

(almost too good to be true) *are* true. When such conservative men as Stachelhausen, Boardman, Gill, the late Gravenhorst, and a score of others, speak highly in its praise—men who are very careful not to indorse a new thing unless it has real merit—then we younger chaps may well sit at the feet of these modern Gamaliels and learn something—possibly to our profit.

BOTTLING HONEY—HOW THE WORK IS DONE IN A SMALL WAY AT THE A. I. ROOT COMPANY'S PLANT.

THIS is the season for bottling honey; and although we have published several articles on the subject we have not shown by illustration just how we do the work here.

I do not claim that our method is the best, or one calculated to give the largest results with a minimum of labor. We use the plan because our bottling trade is small, and because we can put up the honey in clear limpid form in small lots just as fast as our trade calls for it, and no faster. It is not necessary for us to bring to a liquid state three or four hundred pounds of honey in one lot. We can put up a dozen bottles or we can put up several gross at a time, depending on the circumstances; and while the subjoined illustration shows six or seven people at work at once, we rarely have, in fact, in our own bottling-room more than two people. But as the work progresses these two change position as indicated by A and B, by C and D, etc. But before we begin our bottling work we must have the honey.

We aim, in the first place, to make a blend of honey which we can duplicate from year to year. It is not practical, in our locality, to get a strictly pure clover or strictly pure basswood some seasons. As a rule, much of our honey is a mixed clover and basswood; but sometimes both are scarce, and we can "piece out" a crop by mixing a fine grade of alfalfa or sage. For our own trade we make a blend of several of the best grades of honey, and always send out that formula. The result is, the trade gets educated to it, is satisfied with it, and the taste remains practically the same from year to year. But if one were to put out one year a practically pure clover and another year a basswood, and still another, when neither was to be obtained, a sage or alfalfa, he would get complaints at once that his honey was adulterated, because "the last lot did not taste like the first."

Having determined on the blend, pour the proper quantity of each honey to be bottled into a large tin can, and mix. This receiving-tank should hold not less than 200 lbs., and, better, 500 lbs., and should have a quick-closing honey-gate. In the absence of any thing better, an extractor-can with the baskets and the cross-arm removed serves a very excellent purpose. Directly under the gate there should be a tray or pan on a lower shelf. Here the bottles are filled,

and any dripping is caught on the pan. Now, then, we are ready for the bottling. We must understand that the honey in this large can is cold. If, however, it can be stood near the stove or a coil of pipes, all the better, for honey will run freer when it is warm.

We now need a square or oblong galvanized-iron pan as large as the whole top of the stove, with perpendicular sides, and about six or seven inches deep. If a gasoline-stove is used, the pan should be as long and as broad as the top; and if the three burners are on the same level, all the better. The pan should be just about the depth of an ordinary Mason jar; or, rather, the depth of the deepest package to be used for bottling purposes. A false bottom of coarse wire cloth should be secured about half an inch above the bottom proper by means of suitable stays. This is for the purpose of providing a circulation of water under the bottoms of the bottles of honey, for otherwise they might break. Fill the pan about half full of water, and set it on the stove. When the water registers about 180 according to the thermometer, set into the tray, on the false bottom of wire cloth, the bottles of honey that have just been filled from the large filling-tank above referred to. When the pan is full of bottles placed close together, the water should be raised to within about an inch of the top of the bottles. Let them stand in the hot water until the honey in one of the bottles registers about 160. They may now be taken out and corked or sealed. A fresh

supply of filled bottles of honey should next be put back to replace the first lot, and the operation of heating and sealing can be continued indefinitely. Two persons, by following out this plan, can put up something like a thousand Muth jars in a day. But why do we prefer this plan of heating honey to that of heating in bulk? For these reasons:

1. One can fill a small order at any time; and it is not necessary to heat a great bulk of honey in order to put up a dozen bottles or so of honey. In heating a large quantity of honey, one necessarily has to keep it hot a great length of time. The longer the honey is kept hot the greater the liability to discolor and impair its flavor.

2. Bottles that are submerged in hot water can be easily wiped off with a cloth; and as soon as they are corked or sealed they are ready for labeling.

3. The honey that has been poured into the vessels, either cold or hot, will have collected a large number of air-bubbles; and it is these particles of air that have a tendency to hasten granulation. When the honey is heated gradually in the bottles after filling, the process expels the air-bubbles; and by the time the honey is clear it is ready for sealing and labeling.

4. If any honey should candy on your hands, unseal, and set the bottles in the tray of hot water, and reheat and seal without emptying. When the honey has to be emptied in bulk the bottles have to be emptied and washed, which is not an easy job with candied honey, and, after heating, refilled.



BOTTLING HONEY AS PRACTICED BY THE AUTHORS.

The method already described is shown in the illustration above. Boy A draws the honey cold from a large honey-tank into the bottles, which are then put into the tray on the gasoline-stove uncorked, and allowed to stand in the hot water until the honey in the jars has reached the right temperature. B then picks the bottles out one by one, and hands them over to C, who simply picks up the corks and inserts them about an eighth of an inch into the mouths of the bottles. They are next passed on to D, who forces the corks into the jars so that the top of the cork is about an eighth of an inch below the top of the mouth of the bottle. A larger view of the same thing is shown in the next illustration. The lever D has a cleat nailed across one end. On each side are nailed corks of different sizes. By turning the lever one way or the other, and inserting in one of the notches, different heights can be secured for different heights of bottles. The pressure on lever K forces the cork into the mouth of the bottle. D next passes the bottles on to E, who pours paraffine over the tops filling up the space so it will be flush. Remember the corks were inserted below the mouth of the bottle about an eighth of an inch. The paraffine is kept hot on a little lamp stove. E then passes the bottle on to the next one, who puts on the labels. The large heating tray, as will be seen, is on a gasoline-stove. The tray is made of galvanized iron, and each has T-tins running transversely across the coarse mesh wire cloth. On this are placed the bottles while being heated.

WASHING AND CLEANING BOTTLES.

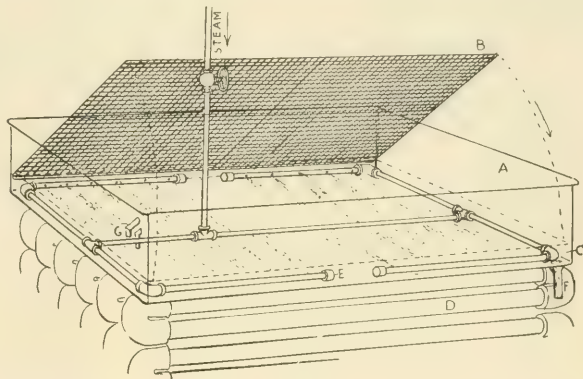
Prepare several tubs of water—one with strong suds—and then have on hand a few ounces of shot—No. 6 is about right. If particles of glass or dirt cling to the inside of the bottles, pour in four or five ounces of shot and give the bottle a shaking. This will dislodge all particles, when the shot may be poured into another bottle, to be similarly treated. In rinsing, use clear soft water. Hard water is liable to leave traces of sediment. Any glass package used for honey designed for table purposes should be spotlessly clean.

HOW TO INSERT CORKS IN BOTTLES.

Two or three methods are employed. One is, to use a rubber mallet, which can be purchased at any of the rubber-stores. The ends of the mallet being soft, a cork that is barely entered can be driven into the bottle with a blow.

Another plan is to use a lever, as shown at D, in cut. This lever should have a projection on the under side so the cork can be forced down into the bottle about a sixteenth of an inch. It is important, after corking, to pour a layer of paraffine or wax over the top of the cork. Some go so far as to dip the corks into hot paraffine, then pour a hot layer on top after they are

while hot, and the cork is made impervious, the honey will remain liquid for months. I have seen samples of honey put up in Muth jars that have been kept in a refrigerator



HEATING-TRAY AS USED AT THE ROOT CO.'S FACTORY.

Instead of using a gasoline-stove to heat the water in the tray we use $\frac{3}{8}$ -inch steam-pipes connected as in the manner shown. The outside pipes are perforated with holes that blow a jet of steam transversely across the bottom of the pan. The wire cloth rests on the pipes. The coil of steam-pipes below serves no purpose but to keep the large filling-tank of honey warm.

six months, and yet it would remain perfectly clear all the time. But do not advise your grocer customers to put honey in a cold place. The bottles should not be handled more than is necessary, but should be kept in a warm place at as uniform a temperature as possible.

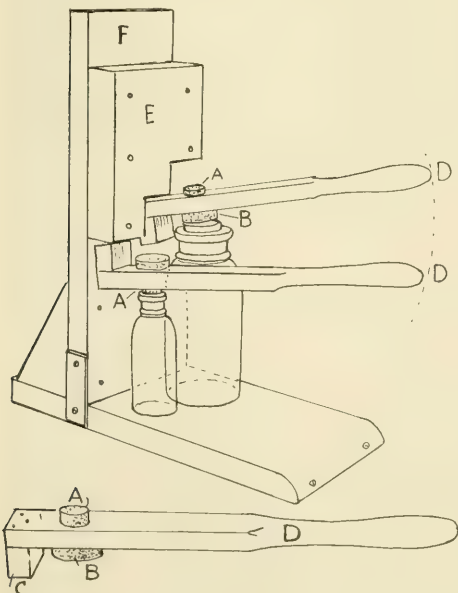
I assume that no directions are necessary for sealing packages using rubber rings. I would only say this: That you must be sure you make the sealing as tight as possible. In the case of Mason jars, screw the tops down with a wrench, and *screw them down tight*.

In sealing jelly-tumblers, cut squares of paper (preferably paraffined paper) about the size of the top of the tumbler. When the jar is filled, put the paper on top of the jar, and squeeze the top down with the palm of the hand, putting a large part of the weight of the body on it. If the top goes down too easily, use thicker paper or two thicknesses.

MOVING BEES TO AN OUT-APIARY AT MEDINA; THE ELECTRIC RAILWAY AND OUT-APIARIES.

It will be remembered that we stated we were establishing out-apiaries along the line of our new electric railway. We concluded it would be better to scatter our bees in four or five different yards rather than feed sugar in one locality and have the bees all together. The aforesaid electric road would enable our men to go to and from the yards, with a minimum consumption of time, and so far this season the plan is working very nicely, for the fall flow is heavier than usual.

After we had loaded up one load of bees that was about starting on its journey for



inserted in the bottles. Nay, some go even further. After the corks have been paraffined they put on a neat tinfoil top. If the honey has been heated above 160, and sealed

one of the yards I took a photo, and this I present before you. In this case we used the ordinary wagon with high wheels and hay-rack on top, with 35 colonies on the load. The driver sits in front, while the apiarist sits in the rear to watch the bees. The driver, on arriving at the outyard, leaves the bees and the man, who, after he has got the colonies in proper position, entrance-screens removed, takes the next car for home or for the next yard on the line.

We were thinking somewhat of having the bees, as soon as the cars get up to our factory, loaded right on to the baggage-car, and unloaded again at one of the outyards, which shall be close to the railroad. In this way, if the charges are not too great, we shall dispense with horses entirely.

The electric railway is going to solve many of the problems connected with outapiaries. It will enable one or two men to take care of several apiaries; save the expense of wagons and horses, and at the same time do away with the danger of having a runaway or horses stung to death, and perhaps having the bees scattered for miles

up and down the road. It takes not to exceed ten minutes to get to any one yard under the present plan, from the home yard. From the yard furthest north to the one furthest south is about ten miles, and yet each yard is within a comparatively few minutes of the home apiary. Five and at most ten cents will take the man to the yard, without fatigue; and when he finishes his work he can take the next car and drop off at the next yard.

So far we have not carried out the plan in all its fullest details, because the electric road is not yet completed, and at present we have to drive to one of the yards; but I can see possibilities in the handling of bees by electricity, so to speak, for a young man of limited capital who can not afford to keep a team of horses and a set of wagons.

There is still another point to consider: When the honey is finally taken off the hives it can be delivered right to the market, without any hauling. The problem of outyards is one of transportation, and the electric line comes very near solving it.



THE ROOT CO.'S TEAM AND A LOAD OF BEES FOR AN OUTYARD; A PART OF THE MAIN BUILDING IN THE BACKGROUND.



RAMBLE 212.

The Isle of Pines as a Honey Country.

BY RAMBLER.

After visiting Mr. Folksdorf, and taking in the beauties of the little bay that broke the monotony of his farm, we all joined our real-estate men and spent a good share of the day in looking at land and getting to the next important town, Santa Fe, almost 10 miles inland. The government has graded a fine road to this town, and the wheeling was fine. It was while on this road that we were impressed with the idea that we were indeed upon the Isle of Pines, for the timber was of that kind, and there was much of it. The soil, much of it, was a coarse red gravel, also much soil particularly adapted to the cultivation of tobacco.

At Santa Fe are mineral springs, and for 150 years it has been a resort for the well-to-do people of Cuba. Yellow fever is unknown here, and the temperature not extreme at any portion of the year.

The hotel-keeper where we abode for two days was also a grocer and storekeeper. He called our attention to quite a pile of beeswax in his store. With Mr. Moe as interpreter I learned that the wax was purchased from a native bee-keeper who owned about 300 colonies three leagues from town, and secured about 7 lbs. of wax to the hive. The honey was drained off in Cuban style, and all of it fed back to the bees. The honey here is usually put into "garaphones."

Over on the south side of the island there is a native with 1200 colonies, and his yield was turned mostly to wax. From the size of the native apiaries in that direction, that portion of the island is evidently a better place for bees.

Some have compared the piney portion of the isle to the pine barrens of Florida, with the exception that a different and better soil prevails here. But certainly Mr. Moe and I would not think of planting an apiary in this portion of the island. While the piney portion is the most elevated, the south coast is nearer the sea level, and the vegetation different, and may contain more honey flora. The timber is different, the pine scarce, and there is a great amount of mahogany and other

valuable timber. The native who had to feed his bees to tide them over was near the pineries.

The largest shipment of bees to the isle was made in 1901 by Mr. Hilar Davis, of Vermont. He shipped 200 colonies to the Columbia Settlement; and although we did not get around to see this apiary, we were informed that the bees were barely making a living, and at a time when the honey harvest was on in Cuba. Mr. Davis had a partner in this venture, and for some reason Mr. Davis sold his interest and returned to Vermont. I learned, as late as March, that the bees were doing better. The owner had just purchased 5 lbs. of foundation at the Root Co.'s headquarters to send over to this apiary of 200 colonies. I certainly hope that the bees have done better since.

It would be unfair for me to say that the Isle of Pines is altogether unfit for profitable bee-keeping. There may be excellent locations; but Mr. Moe and I, in our few days' visit, saw nothing that would induce us to put an apiary there. Those who hold out rose-colored inducements to that effect are those who have but little knowledge of bees, and who think that a honey-yield can be gathered from a few orange-trees or from the flora of the front flower-yard of some residence. As a very sensible person said, who has been on the island two years, and who has cast his lot there, "This whole proposition of bee culture, fruits, and garden truck is wholly, so far, an experiment, and will be until the trees are bearing shiploads of fruit, and the gardens producing the same of winter vegetables. It is also an experiment until it is decided that it is United States land, and until regular lines of steamers are run direct to the States."

It is hoped that the experiment will prove successful, for there are good and worthy men and women on the isle who deserve a rich reward for their toil.

A portion of the Davis bees shipped to the Isle of Pines were in the Davis hive; and while talking with him at the home



OFF FOR THE INTERIOR.

apiary of Bro. Brown, of Tulipan, and learning that he stood it on end for wintering in the cold climate of Vermont, my memory jogged back several years to a conven-



THE TOBACCO-BUG BOYS.

tion in Albany, N. Y., where I saw the same hive and principle, and Mr. Davis with it, and here we were again, met in Cuba under the palms. The hive does not receive much attention here, except from the inventor; and now he has returned to Vermont, the hive will probably be discarded.

Somehow Mr. Davis had allowed something to sour his mind against all bee associations and all bee journals, and he appeared to me like a man looking for trouble, and, as is usual in such cases, he got what he is looking for. He is something of a manufacturer of bee-supplies, and almost his parting word to me was that he was going back to Vermont to knock out the Root Co. in the supply business. I told him I was real sorry for him, for he had a big contract on his hands.

Besides the shipment of bees by Mr. Davis to the Isle of Pines, there have been a few other shipments, but which have not made much of a record.

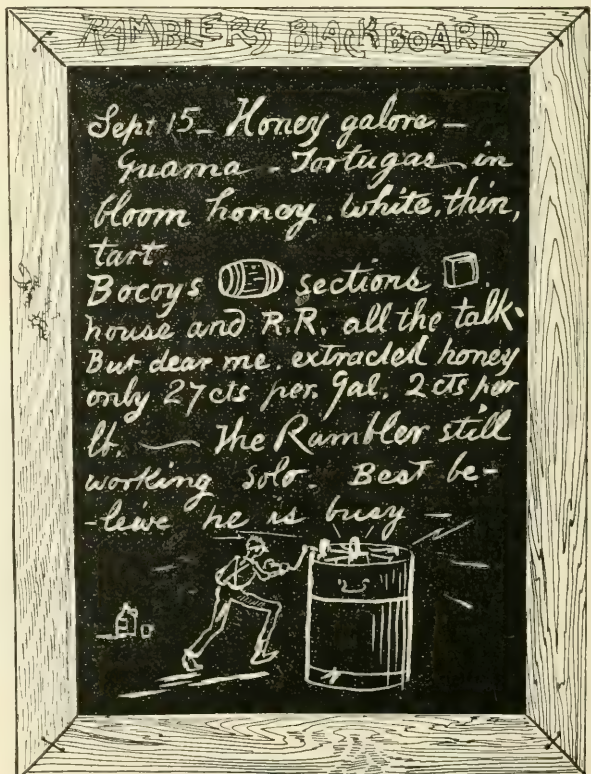
Santa Fe is a delightful old town. Then there was such a pleasant party of us! Two gentlemen from the Central States; Mr. Storms, from Minneapolis; the Rambler, from California. Our real-estate men proposed to show us land and climate in solid chunks. They said we could not use our wheels on this route, so we mounted mules, and Mr. Storms and Mr. Moe were stowed into a volante. The photo shows what an animated crowd we were when ready

to start; and the volante such an antiquated vehicle, with such a weight upon the poor mule's back! the other mule is attached to the vehicle with ropes, and our Jehu mounts him; and, such a Jehu! his lash is going all the time, accompanied by his shouting. In the United States such cruelty to the poor beasts would not be tolerated. There is one consolation—the volante is seldom used; they are almost out of date.

On this day's trip I saw the first coffee-plantation. The little blossoms on this shrub are very fragrant, and the bees work upon them with enthusiasm; but they last for only a day, and the period of bloom is short.

The land here is what they call mulatto soil, and the best land in the world for tobacco. All along our trip were tobacco-farms, and here they made those 50-cent cigars—or, rather, they

are sold in the States for 50 cts. and \$1.00. Here in this wilderness is an old lady who has made thousands of cigars, and she smokes several of those 50-ct. cigars every day. My traveling companions all had cigars, and extolled their mildness, richness, and flavor. I did not pay much attention to their talk until all of a sudden I thought



of the following passage of scripture: "And the earth brought forth grass and herb yielding seed after its kind, and the tree yielding fruit whose seed was in itself after its kind; and God saw that it was good."—GEN. 1:12.

Tobacco was created for some good purpose, surely. Now, I have been troubled for several years with insomnia, and have tried various remedies. It occurred to me that I had never tried smoking a cigar. Now was the opportunity while in the best cigar country in the world; and the next time Mr. Cody offered me a cigar (he had his pockets full) I accepted one, to his evident surprise; and, what is more, I smoked it to a finish. I was surprised, in my turn, at the ease with which I smoked it, and without the least nausea. I slept well that night in the old hotel at Santa Fe, and, more, I came in from the 20-mile mule-back ride that day the least fatigued of any man in the crowd, except, of course, the real-estate man and the Jehu of the volante. But, dear reader, my remedy was of short effect, and my smoking of short duration. I am troubled with insomnia yet.

Tobacco has many enemies; and from the time the seed is sown until the curing, constant vigilance is necessary. When the plant is tender, bugs or slugs like those on potatoes are prevalent. I present herewith a photo of the potato-bug boys. They were picking slugs and putting them in the bottles shown in their hands. From the appearance of the central youth you will note that, though this photo was taken in January, he was lightly clothed.* These country boys wear no shirts, and many grown men are dressed the same.

If I have dealt more in real estate than in bees and honey in these Rambles in the Isle of Pines, it is clearly the fault of the island to supply the material. The isle is not up to Cuba as a honey-producer. To the person who wishes to build a beautiful home in a generous and healthful climate, and isolated far from the wear and tear of business, and far from friends and relatives, far from libraries and lectures, far from the daily press and your favorite periodicals, far from rail and electric roads, then the Isle of Pines presents all of the conditions necessary.

THREE GREAT HONEY-PLANTS.

The Date Palm, Cocoanut Palm, and Royal Palm.

BY W. K. MORRISON.

The date palm (*Phoenix dactylifera*) is known almost universally as a useful tree. The dried fruit is sold wherever civilization extends, and yet it is not, I think, known as a first-rate honey-plant, producing a large amount of nectar in its flowers, which bees greedily collect. Sometimes I have counted as many as 200 bees on a single

flower; and the first time my attention was attracted to this phenomenon I almost laughed outright at the way the bees *sat down* to sip the nectar, for that is about the only expression that will convey to the mind of my readers the manner in which bees get the sweet nectar.

As the date-tree is of the first economic importance, it follows that this is a great acquisition to our list of honey-producing plants. It is now some years since it was first known to the writer in this aspect of a nectar-producer, and having carefully watched it in various localities I place it high among the list of bee-plants. There are various locations where the date palm will flourish in the United States and Australia, and these are just the places, probably, where bee-men most require a honey-plant that is a thorough drouth-resister. In Arizona, California, and Florida there ought to be a future for this tree in its dual role of a fruit-giver and nectar-bearer. True, it does not stand much cold, but so ne of its congeners may. The wild date, of India, is hardier, and this produces sugar after the manner of a maple, so we are not without hopes of extension northward. Any way, both are very tough plants and easy of handling, growing readily from seed. Probably the kinds grown for house decoration, *Phoenix rupicola*, *P. tenuis*, and *P. reclinata* are good honey-plants, but I have had no means of discovering the fact.

The cocoanut palm (*Coccoloba nucifera*) is, in my opinion, by far the most important of all the palms. Its usefulness to man is almost incredible to persons unacquainted with the tropics. The timber is very useful and very durable when properly handled; the leaves are used for a variety of purposes; the coir, or fiber, which covers the nut, is known to everybody who has seen a cocoanut mat; and the nut (or, rather, the kernel of the nut) is known to all. The green cocoanut furnishes a drink that is both very palatable and refreshing in hot countries. It is, indeed, a great delicacy. The meat of the nut is one of the most useful foods of the tropics, for the reason that it supplies both nitrogen and fat—two things that are very much lacking in most tropical fruits. Instead of lard or olive oil the tropical inhabitants use the oil of the cocoanut, and, to my taste, it is superior to either, for it has a sweet nutty flavor. If doughnuts are made in cocoanut oil they have a nutty taste that adds much to their palatability. The cocoanut palm flourishes all around the tropic seas, for it is a plant which requires a little salt in its food, and it is usually seen nodding over some tropic ocean strand. Mr. Cook, who has charge of the tropical work of the United States Department of Agriculture, has formulated a theory that the cocoanut is a native of the interior valleys of the Andes, in Colombia and Ecuador, where there are salt lakes. If this is so it opens up possibilities for the culture of cocoanuts in entirely new localities hitherto deemed unsuitable.

* Our artist seems to have put on a coat and a shirt—E.D.

The idea has long prevailed that the cocoa palm was native to the coasts of the Eastern seas. This will undoubtedly prove to be an error. If Mr. Cook's theory prove to be the correct one, the cocoanut palm may be grown inland, in which case bee-keepers will be furnished with another string to their bow, one on which they can rely.

I do not think it is quite as good a honey-yielder as the date, though there is probably not much to choose between them. In Florida the cocoanut has undoubtedly a future. The largest grove of cocoanuts is said to be in Florida, and probably more will be planted for years to come, since the United States must prove a fine market for the product. There are other species of coconuts in South America, but I do not know their value as honey-plants.

The royal palm (*Oreodoxa regia*) is known already to many of the readers of GLEANINGS as a honey-plant. It has the drawback that it is grown only for ornament, though it is often cut down for the "cabbage" it contains, which is the soft unfolded green leaf. In the "English" island of the West Indies it is known as the cabbage palm—a very prosaic name for a very elegant specimen of the vegetable kingdom. The palms are the princes of the vegetable kingdom, and the royal palm their king. Some botanists have distinguished another species of *Oreodoxa*; viz., *Oleracea*, but, I think, without rhyme or reason—certainly with bad taste when they term it *Oleracea*. It gratifies the bee-keepers to know that so noble a tree is an extra good producer of honey. Large numbers of these fine palms have been ruthlessly destroyed in the West Indies for their cabbage—almost exterminated in some islands—but with the advance in civilization more will be planted as avenue trees and for decorative effect.

The Greek architects are said to have copied the palm when they designed their beautiful columnar style of masonry. Whether this is so or not, it is a queer specimen of a man who is not struck with a feeling of admiration when viewing an avenue of these splendid productions of nature.

If the onlooker is a bee-keeper he has the added satisfaction that the trees he beholds are excellent honey-bearers, and it rather flatters a bee-keeper's pride when he discovers that the date, the cocoanut, and the palmiste are plants the little bee delights in. Curiously enough, royal-palm honey and mahogany are much alike in all respects.

BLEACHING COMB HONEY.

A Suggestion in Regard to the Burning of Sulphur;
A Cheap and Effective Wax-press.

BY J. A. CRANE.

Mr. Root:—Allow me to make a suggestion in regard to the burning of sulphur for the purpose of bleaching comb honey. Mr. J. E. Crane says he could not make the

cold smoke draw through the clamps of honey. Now, I never tried to make smoke go through a stack of honey, but I have followed it through all or nearly all sorts of fruit-bleachers, from the old basket in a barrel covered with a sack or something, to the latest steam-driven bleachers and sliding-box bleachers of the present day, having used personally seven different apparatus for the purpose, and having bleached more than 50,000 bushels of apples, and burned tons of brimstone. First, the only method of burning brimstone now practiced is the cup method, which is as follows: Have a cup made of sheet iron, or, better, cast iron, that will hold from a pint to a quart. Put in as much brimstone as you need, crumbled fine. Take another piece, large enough to hold easily; light a match; hold it to the lower edge of your brimstone; let it melt and burn, and drop into the cup, when it will gradually melt and burn—a veritable lake of fire and brimstone. Now, when you have your cup going, place it in a box with a pipe leading to your bleach-box, entering at the bottom of the front end. Next have a stovepipe leaving your bleach-box from the top of the back end, entering a chimney or other flue with a strong hot-air draft from a stove or furnace. I draw sulphur smoke through eleven feet of apples in crates in this way continuously for several months at a time when running my evaporator in the fall, and am sure the same plan will work satisfactorily with honey.

I should also like to describe, for the benefit of others who have a few bees and some wax, but not enough to pay to buy a wax-extractor, a press of mine which costs but little and is effective, and easy to operate. First get a large old-style pit-bottom dinner-pot. Remove the bale; make a false bottom of $\frac{3}{4}$ x $\frac{1}{2}$ hard-wood strips fastened together by tacking on strips of tin so it will lie on the shoulder formed by the top of the pit. Next take some hoop iron and make two hoops just large enough to fit inside the kettle on top of the slat bottom. Then make some more hard-wood slats, $\frac{5}{8}$ x $\frac{1}{2}$, just long enough to reach from the top of the slat bottom to the top of the pot. Nail these inside the hoops, $\frac{3}{8}$ inch apart, one hoop at the top and one at the bottom. Make a circular follower to fit inside your hoop. Next take a piece of 2x3 hard wood, long enough to reach across the pot; bore two $\frac{3}{8}$ -inch holes near the ends so that they come just over the ears of the pot; cut off the heads of two $\frac{3}{8}$ bolts; bend a hook on them to hook into the ears of the pot. Now get an apple-barrel press-screw; bore a hole in the center of your cross-piece for the nut; place the nut on the under side, and your press is done. Place the pot on the stove; fill one-third with water; put in the slat bottom and hoop. Take a piece of burlap, or, better, grain-bag, large enough to line the hoop, and leave quite large corners sticking out over the top. As soon as the water boils, begin to put in your old

combs or other wax; pack down with a stick, and stir it a little until you get in as much as you can handle. Keep the water and wax at the boiling-point; fold over the corners of the cloth; put in the follower; put on the cross-piece; hook the bent bolts into the ears of the pot; turn down the nuts; now turn down the screw as far as it will go, then loosen and press again. Take the whole thing by the screw-handle and pour off as much clear wax as you can; remove screw; take out the hoop; dump the slumgum, and proceed as before. This is a press that cost me 43 cents. Mine is large enough to press about 25 combs at once, and will work nearly as fast as I can tell the story, and will get about all the wax there is in the blackest old combs I ever saw.

The object of the strong draft to the bleacher is that the smoke is taken away and does not settle on the fruit and discolor it. Why not the same with honey?

Marion, N. Y., June 21.

SHOOK SWARMS.

Behave in all Respects Like a Natural One; Never Shake all the Bees.

BY L. M. GULDEN.

Mr. Root:—In compliance with your repeated requests for experiences with the "shook swarm" method of controlling increase I will contribute my mite. Having purchased an apiary of about twenty colonies of bees to place in a region where basswood abounded, at a distance of seven miles from home, I began to consider the various methods of controlling increase in outyards. As there was no one at the outyard to look after the swarms, if any should issue, and as I wished to run entirely for comb honey, I was at a loss to find any information at all definite as to the management of increase. The "shook swarm" method naturally suggested itself; and as I have practiced it this season with this particular yard it has worked to perfection.

Before the swarming season I went to the yard and clipped all the queens so that, in case I mismanaged in any way, I would not lose a "prime" swarm (Doolittle). I then went to the outyard about once a week to see how they were getting on. As soon as I expected swarming to begin I went through all the hives and gave them a thorough examination. I noted all the conditions of each colony, and kept a record of it. If any colony was preparing to swarm I could tell almost to a day when they were likely to issue. I did not divide the colony as soon as it became populous, as was suggested by some, but waited until it would have swarmed naturally, or very near that time. I managed so that it was necessary to visit the yard only twice a week. If a colony showed no sign of swarming at one examination I did not disturb them for a week. At the end of that time I went over the whole brood-chamber again. I much

prefer the Hoffman frame with shortened top-bars when so much manipulation of brood-frames is necessary.

When the proper time arrived, or what I thought so, I gave the colony to be divided a few puffs of smoke, if necessary, and set it to one side of the old stand with the entrance turned at right angles to its first position. I then placed a hive with empty frames or combs on the old stand, and, after having first found the old queen, I shook the bees from the frames into the empty hive, and let the queen go in with them. This procedure works like a charm, as the bees are in the same mood as when a swarm issues naturally, and walk into the hive just as if they were being hived from the cluster where they would have settled. They immediately went to work cleaning house and furnishing it; and, so far as I can see, did fully as well at gathering honey as any natural swarm. The old colony was either left in the position it was placed, and moved to a new location at the end of a week, or immediately placed on a new stand. I much prefer putting them on a new stand and giving them immediately a ripe queen-cell or virgin queen; but when this is impossible I cut out all the queen-cells a day or two before the first queen would issue, reserving the best one, and then examining them again to find out if the queen had emerged all right.

Right here let me sound a note of warning to the advice of shaking *all* the bees into the new hive when dividing. In my divisions I took particular pains to determine the best amount of bees to leave in the old hive, and I wish to say that considerable harm may come from too close dividing. I have carefully observed the condition of brood and eggs in the old hive when dividing, and again a few days afterward, and find that, unless a considerable number are left in the hive, large patches of young larvae would die in the cells and turn black. Some frames in which were eggs were also found to be empty at a subsequent examination. Remember, this did not occur in cold weather, but in the very hottest part of the year. I have also observed that nature is not always the most economical in her ways, or at least does not appear to be so. On examining colonies a few days after they had cast a swarm I found practically the same conditions as I have described when making too close a division in the artificial way.

I will practice dividing on a greater scale hereafter, as I am convinced that, when it is properly done, just as good results may be obtained as by the natural way, and often much inconvenience to the apiarist may be circumvented.

In practicing the "shook swarm" method I lost only one swarm. I made the division the same as with the other colonies, but placed a comb of brood in the hive with the swarm, having purposely taken one having a queen-cell on it by way of experiment. When the young queen emerged she eloped

with a swarm for parts unknown, leaving the old lady to take care of the house. Will Doolittle kindly tell us if this was a prime swarm, first swarm, or what it was?

Osakis, Minn., Sept. 1.

ADVANTAGES OF THE "SHOOK" SWARM METHOD; HOW IT SAVES HIRING HELP, AND HOW IT CAUSES THE COMB HONEY TO BE WHITER.

I find that brushed or "shook" swarming has several advantages over natural swarming. In the first place, you don't have to watch for swarms a greater part of the time; and where out-apiaries are run, a great saving is the result; and more honey is obtained, because the swarming is done at the commencement of the flow, the bees being brushed on wired frames with half-inch starters with excluder on. Supers filled with drawn combs, the bees simply have to store in the super—nowhere else to put the honey.

The honey is capped whiter. As you well know, you get whiter-capped sections over newly built combs, and the honey will bring a far better price. I brush on eight frames, leaving the swarm on the old stand, leveling the hive so as to have true combs; and after the queen begins to lay I remove three frames, filling the space with dummies. I also remove the excluder at the same time, as the bees seem to work some better; and I rarely find brood in sections after the queen begins to lay in the brood-nest. I had only one do so this year in 150 colonies. After they get the five frames filled with comb, remove dummies and fill the space with combs, or frames filled with full sheets of foundation. If you have young vigorous queens you won't have much drone comb.

I give my queens all the combs they can occupy, from early in spring until the honey-flow, which comes here about the last week in June. We have a slow flow from the first of April, enough to cause the bees to build up fast, and swarm if they didn't have plenty of room. Of course, I have rousing swarms. If they are crowded at first I put an empty body under the hive until they begin work, then I remove it and contract to five frames, and put on two or more supers filled with drawn combs; and if there is any honey in the flowers the bees will get it.

Don't expect honey from a weak stand. Don't expect to get a rousing big colony in one eight-frame brood-nest. Don't hive or brush swarms on drawn combs. Don't give a frame of brood and the rest of the frames with starters.

Brush on wired frames with $\frac{1}{2}$ -inch starters to get best results. If all bees are brushed from the old hive, fill the entrance with green leaves to keep out robbers. If you get more combs than needed, cull out all undesirable ones and render into wax.

By the "shook-swarm" method I ran 150 colonies this season, and have taken off 7000

lbs. of honey. I also ran a truck-farm and garden and small dairy with the help of my two small sons.

Before I adopted the brushed-swarm method I had to have a hired hand; but now I save his board and wages, and get more honey in better shape. I am of the opinion there are more practicing the "shook-swarm" method than you are aware of.

J. T. HAIRSTON.

Salina, I. T., Sept. 6.

THE SHOOK-SWARM METHOD AS A REMEDY FOR BLACK BROOD.

We had had but little experience in this line until last spring, when our bees were nearly all dead with a disease we think was black brood. We burned some, hive and all, and brushed some that left us in a day or two.

We saved only two—one a very small one, and the other was building up well, so we did not treat that. By a little stimulative feeding the strong colony swarmed May 13, and was hived on the old stand with full sheets of foundation. The old hive, which we will call No. 2, was removed to a new stand. This hive was left as it was till the young queen began to lay, when all was brushed from these empty combs on to new foundation and a clean hive.

Now, colony No. 1, or the one with the old queen, swarmed out July 4, but returned to the hive; and on examination we found they had sealed queen-cells. We now took all the brood and a few bees from this hive and formed two nuclei, and left the queen and most of the bees on the old stand with new frames full of foundation.

Hive No. 2 cast a good swarm Aug. 2, having a young queen hatched in the hive this year. (All rules fail sometimes, you see.) No. 2 swarmed again August 11, which, when the young queen had begun laying, was returned to the parent hive. Now, what I wish to bring to prominence is this: Notwithstanding each of these colonies was robbed of *all* its combs once during the season, yet hive No. 1 has stored 50 lbs. of section honey, and No. 2 stored 30 lbs., and each will have enough for winter.

We have made three nucleus swarms from these, so we have six good colonies and 80 lbs. of honey from the one good colony in the spring.

The weak colony that was treated for black brood in the spring was given a virgin queen in place of the old one, and they have built up nicely, but have lately developed a little disease. We have moved them a mile from home, where there are no bees; and when they are about through raising brood for the season we intend to brush them off and fumigate their combs with formalin, according to Prof. Harrison's plan, then return the combs to the colony for winter feed, and see if the disease will show itself again in the spring.

Black brood, or whatever the disease is, that is in this vicinity, has made nearly a

clean sweep of all bees in several townships here. We had 27 colonies two years ago, and last spring we got down to 2.

Ludlow Center, Mass. L. PERHAM.

TRYING TO CHECK NATURAL SWARMING
BY BRUSHING NOT ALWAYS A SUCCESS.

There were about 70 colonies 30 miles from home, which were strong at the beginning of the honey season. About three weeks before this, a hive with empty combs was placed under each colony, making two eight-frame hives for a brood-nest. The entrances were made one inch deep, and shade-boards were placed on the covers. When the yield from clover began, I confined the queens to the lower stories with excluders, and placed under each colony a story with frames having foundation starters only. This made for each a story of empty combs above the excluder, with one of brood and one of empty frames below it. All this was done to discourage swarming.

The weather was hot and the nectar was very thin. In five or six days they began to swarm. Each swarm was returned after putting the excluder down on the story with empty frames and removing the queen-cells. In fifteen or twenty colonies I now placed the excluders over the empty frames and put the queens below them. The next day a number of them so fixed swarmed, and some that had swarmed before did so again.

I concluded to brush the rest at once. I shook the queen and bees into the lower stories of a number of hives, leaving the brood beside the parent hive with bees enough to care for it. This brought the story of empty combs down on the excluder over the empty frames. Several of these swarmed the next day. I now shook a lot, giving them nothing but the empty frames, but they still swarmed from them. Then I tried some with two stories of empty frames. That was better, but no sure thing. At the same time, I was using every means that I knew to induce them to stay in the empty frames. I gave some a frame of unsealed brood, some a frame of sealed brood, and some had only empty frames. Some would swarm out once after being shaken; some, two or three times. If they came out from empty frames I would give them a frame of brood; if from a hive with a frame of brood, I would take it away. I also placed a few in a new location. All these combinations failed more or less. About thirty per cent swarmed after being shaken, and, what was worse, part of them two or three times in a day or two. But every thing went very well after they settled down.

The best method I could choose from these variations is this: Jar the hive roughly before shaking out, so the bees shall fill themselves well with honey. Next, shake the bees into a hive of empty frames on the old stand, leaving enough bees to care for the brood. If the swarm does not have plenty

of room in one story, give them two. In two days, put on the surplus arrangements. By that time comb-building is well started for the queen to lay, and the swarms remained better than when the supers were put on at the time they were shaken out.

I think the season was unusual for swarming. But the point is, brushing failed to prevent swarming to a reasonable extent, in this case. Most of the colonies had not started queen-cells when brushed. The method gives good results, however, and I like it better than removing queens.

Ada, O., Sept. 8.

C. G. LUFT.

[This case was unusual. The bees throughout the yard had gotten the swarming fever to an unusual extent before you tried the expedient of brushing swarms to check their furor. When an apiary becomes demoralized like this, no repressive measures could bring relief. When bees get agoing like this they seem determined to have their fun out and they do. If you made any mistake, it was in giving too much room at the start. You discouraged them by giving more room than they could keep warm. If you had not put that second story under the brood-nest nor used the perforated zinc the result would have been different. To curtail the egg-laying of the queen at the wrong time will very often induce swarming.—ED.]

A PRACTICAL HINT AS TO THE METHOD OF
"SHAKING;" A QUESTION.

I notice you ask bee-keepers to give their experience with shook or brushed swarms. My experience is limited but satisfactory. This season I had quite a number of swarms issue and then return to the hive from which they issued. Instead of waiting and watching for the bees to come out again I put a hive filled with empty combs or frames of foundation on the stand of the swarming colony, and shook the bees off from the combs of the colony in front of the prepared hive. If the swarming had occurred in June instead of August I should have used frames with starters of foundation for the swarm. I use the word "shook" advisedly, because, as a matter of fact, I did not brush the bees at all. Brushing angers the bees more than shaking, and takes twice as long to do the work. There is a knack about shaking that is easily learned. Place the fore finger and middle finger of each hand under the shoulders of the top-bar, and the thumb of each hand above. Draw the frame upward a little and then make a sudden downward movement. This is arrested by the fingers under the shoulder of the frame, and throws the bees off their guard. A second movement detaches nearly all of them. Those that are left on the combs are allowed to remain to care for the brood and protect the hive. More colonies would have been treated as above if I had been physically able to perform the labor. In future, when a honey-flow is on and I have strong colonies that are doing little or

nothing in the supers while other colonies are storing rapidly, I shall have the bees shaken into the prepared hives as soon as the above-named conditions come under my observation. When these conditions prevail I have always found that there is a congested brood-chamber. The queen is forced to stop laying because every cell is filled with honey as fast as the brood hatches. Why the bees will not store above when there is plenty of room to do so is something I do not understand. Sometimes these idle bees prepare for swarming by starting queen-cells, and sometimes they do not. In either case the sooner their discontent with conditions in the brood-chamber is overcome, the sooner work in the upper stories will be resumed. E. BEVINS.

Leon, Ia.

SHAKING SWARMS ON THE INSTALLMENT PLAN; A UNIQUE SCHEME TO GET DRAWN COMBS FOR SECTIONS.

This season above all others I remember—with only two or three good honey days—has caused me to look at swarming as a useless waste of time—to the bees at least. Now, the way I shook my swarms is not unlike the man who decided to cut the tail off his dog. Thinking it would be too much of a shock to the dog to take it all off at once he decided to take it off on the installment plan—an inch or two at a time as he could spare it. I don't like to let my bees get ready to swarm; for if they do they act disappointed unless allowed to. Therefore at the proper time I take away one, two, or three frames of brood as I think best, and replace them with frames containing starters an inch wide or more. Yes, the first thing the bees do is to build drone comb, and that, too, with a vengeance; but before there is brood in it I cut it out and let them commence over again. I use this comb in the sections; and here let me say I use little but drawn comb in sections. Perhaps you pity me for being so foolish; but never mind. Should there be eggs in this drone comb, leave it where it is cool for a day or so, and they won't hatch.

My bees will get to work in sections filled with drawn comb before they will attempt to swarm, providing there is one or more frames in the brood-chamber in which they can build comb. With this plan I never think of watching for swarms, as some of my bees are at outyards with no one in charge of them.

Now, then, when I get plenty of sections, filled with drawn comb, and the bees at work in them, and honey coming in, I "shook" the rest of the frames containing brood, and replace them with frames with starters only. Now about those frames of brood. I put a lot of them together, somewhat destitute of bees, with a young queen; and as the brood hatches out it soon gets to be strong with bees. I then take away part of the combs and put on sections; and if plenty of sections are given, it seldom attempts to swarm. But those shook swarms,

after the summer is over and the harvest ended, will up and swarm some warm day—at least that is what they have been doing of late.

D. S. HALL.

South Cabot, Vt.

A METHOD WHEREBY THE BEES ARE NOT SHAKEN FROM THE INSIDE OF THE OLD HIVE.

I have practiced the shook-swarm method for years with good success, but I do not shake the bees from the inside of the old hive, for by that means the old queen may get into the new hive. The proper way is to get a new hive ready with foundation and one or two frames of brood without bees. Take it near a hive that is in condition to spare a swarm, and if they are clustered out at the entrance, so much the better. Put a caged queen into the new hive; for if either hive is left to raise a queen it will take nearly a month, which means valuable time lost, and about half of the bees will die of old age. After giving them a little smoke so that they will not fly much nor sting, brush them off the outside of the hive and carry it to a new place. Set the new hive on the old location, and the job is done.

All the bees that were clustered out, as well as the field workers, will be in the new hive, and they will keep coming from the old hive to the new one for several days.

One will readily see that it is an improvement on natural swarming, for both hives have a laying queen, and will not raise any, consequently there are never any after-swarms.

WM. REYNOLDS.

Corwall-on-Hudson, N. Y., Sept. 21.

A BELIEVER IN SHOOK SWARMS.

I worked two colonies this way this season, and they did better than any of the rest in the apiary. Each of them gave about 125 lbs. of extracted honey, and the old colony (that is, the frames of brood) gave a crate of sections, 21 in a crate. They worked for all they were worth, and never thought of swarming, although they were crowded out behind the division-board so as to build comb there. I think this a splendid plan to overcome swarming. I intend running largely on this plan next year.

CHRIS. GRIMOLDBY.

Owen Sound, Can.

THE SHOOK-SWARM PLAN SPECIALLY APPLICABLE FOR OUT-APIARIES.

You ask for the experience of those who have practiced the system of shook or brushed swarms. I should like to say that I have found the system most excellent, especially for *out-apiaries*, as it seems to come as near preventing swarming as we can come to it. I have practiced it ever since Mr. Stachelhausen told us about it in GLEANINGS, and shall hold on to it until something better is offered.

Pomona, Cal.

M. R. KUEHNE.



NOMINATIONS FOR GENERAL MANAGER.

Mr. Root:—As there is now practically no nomination of any one to succeed Hon. Eugene Secor as General Manager of the National Bee-keepers' Association, to be elected next December, I consulted with some of our leading bee-keepers at the Denver convention, and since, and it is thought best to nominate Mr. N. E. France, of Platteville, Wis., for the position, which I now do. Not having an intimate personal acquaintance with him I have taken pains to make inquiries regarding his fitness for the position, and find that he is a thoroughly honest and capable business man; in the prime of life; temperate in all his habits; has tact; accustomed to speak in public; has labored unceasingly and unselfishly for the upbuilding of bee-keeping, having spent considerable of his own money and time in securing legislation in the interest of bee-keepers, and preventing the passage of laws that were opposed to their interests. He is one of the speakers at farmers' institutes, often neglecting his own business to work in the interest of bee-keepers. He manages several apiaries, and has produced hundreds of tons of honey. For several years he was Secretary of the Southwestern Wisconsin Bee-keepers' Association, and for ten years was its President. For several years he was Secretary of the Wisconsin State Bee-keepers' Association, and for four years has been its President. He secured the passage of the Wisconsin foul-brood law, and is State Inspector of foul brood.

I know of no one in our ranks better fitted to fill the office of General Manager of the National Bee-keepers' Association than is Mr. France, and I hope he will receive the hearty support of the members at the election in December next. A. B. MASON.

Sta. B, Toledo, O., Oct. 6.

CATNIP AND RASPBERRY AS HONEY-PRODUCING PLANTS.

I have some catnip honey this year for the first time; and although it is mixed with smartweed slightly, all pronounce it the best honey they ever tasted. Nearly all hedges near here are full of it. It does best in low hedges or brush-piles, where the roots are in rich soil and protected from the heat of the sun. I have sown nearly all waste places, and have about 5 lbs. left, and am gathering more.

I consider it very valuable because I have never known it to fail, and it is now 20 years since I first noticed it. It blooms

from July 1 till frost, and bees are always busy on it. I have always classed it as a plant that produced honey of extra-fine quality, and well liked by the bees; but I never get any surplus from it unless clover, sweet clover, or smartweed was in bloom. I think it never yields profusely, but perhaps a large field would be different. However, I think sweet clover and raspberry pay best of all honey-producing plants around here.

This year my bees swarmed on raspberry; and, being in the fruit business any way, I intend to plant extensively of raspberry. From the way the plant does here, if I could get it to bloom all summer, or as long as catnip, I could beat even Dr. Gandy, in a small way. Raspberry always yields profusely, and bees tumble in the hives as if working on basswood. I shall give more attention to bees. If I live I want to increase to 100 colonies next year. I look for an extra-good year, because we have lots of white clover, sweet clover, catnip, basswood, and fruit-trees.

I am sorry you have raised the price of hives; but I shall have to have them just the same. You are about perfection in hive-making. I consider the best hive for my use is the eight-frame and L. Ideal super, with shallow extracting-frames between, as per the Barber plan, with ventilated gable cover. This year I have decided that, without shallow frames, the bees are almost sure to crowd the queen too much.

Although I consider catnip a good honey-producing plant, I believe all readers should be cautioned not to get excited over it, because, no doubt, in a few years it will be a thing of the past (that is, a good honey-plant, but not any better than nor as good as some others). I have great faith in raspberry, and predict great things from it; and as there are now several kinds of ever bearing ones I shall test them the coming year.

While keeping bees here (12 years) I have never had to feed for winter stores (except nuclei), and never lost a colony in wintering from starvation, except nuclei or late after-swarms. Perhaps catnip honey is the cause. J. E. JOHNSON.

Williamsfield, Ill., Sept. 22.

BLIGHT-PROOF PEARS.

In the article of J. E. Johnson, page 779, he says, "My pear-orchard is on high clay land; trees white with bloom, and no blight whatever. I have only such as do not blight—Keiffer, Garber, and Dutchess." Now, I wish Mr. Johnson could step over on my high clay hill and take a peep at my pear-trees, of which I have 15 varieties. All have blighted very badly. Some of my Garbers have blighted every limb down to the trunk, and were loaded with pears which dried up, leaving some still hanging on the trees. I have about 60 stands of bees that hum from tree to tree.

Mr. Johnson says, "If men will plant the right varieties on suitable land they need not worry about trees or blight." To me this is a wild declaration. If he is able to select such varieties and such land for planting as will make the trees immune to the blight, a fortune awaits him. My experience along this line covers a period of more than 40 years. I have planted on all kinds of soil, and even on sod; have given thorough cultivation, and tried many remedies, all of which have failed. The trees would blight—some not till the trees came in bearing, some sooner.

For 25 years I have bought and planted all the new varieties as introduced, only to meet failure, and I do not believe there is such a thing as a blight-proof pear in Illinois—yes, I might say in the Central States. I could not tell (without hunting up my records) how many varieties I have tested in my time, but the number is large.

I do not believe that bees scatter the blight, for many trees blight and die long before they bloom. My observations lead me to believe the blight is a sap disease, not caused by bees or any other kind of insect.

J. W. C. GRAY.

Atwood, Ill., Sept. 21.

DANGER OF USING VERY FINE WIRE CLOTH; A SAFE METHOD OF INTRODUCING QUEENS.

On page 739 B. Passage gives his method of keeping queens. It is the same as I have used, and is ordinarily safe. However, on page 275, Langstroth on the Honey-bee, we find this warning: "The meshes of the wire cloth should not be closer than 12 to the inch, that the bees may feed the queen readily through them. This is important, as we have lost two queens successively in a cage with closer meshes. The bees will cultivate an acquaintance."

I use this "acquaintance" in introducing queens where safety is wanted more than quick introduction. About six days before a queen is expected I go to the hive and find the queen and leave her in the hive as Mr. P. describes, thus having this one to liberate in case the new queen arrives dead. When the new queen arrives I open the cage and release the escort (this is done by holding the finger over the end after removing the perforated metal, and working them out carefully with an awl. It is quicker to kill them with the awl, but I hate to after they have guarded their mother so faithfully hundreds of miles). I then open the hive and remove the old queen. I now place the future mother in her stead, having previously tacked a good strong piece of pasteboard over the wire where the candy lies, to keep the bees from eating away the candy from the side. Two days later I again open the hive, and the bees will be found just "loving" her. Then I destroy all queen-cells, catching a few bees (young ones, I have used old without loss). I put them into the cage, also a drone or two just

for luck, although she seems offended at this, remove the cork, and finish the candy method. In putting in the escort I watch their behavior toward their queen; and any bee showing fight is instantly pierced through the meshes of the cage with the awl.

It is well to remember, when you introduce a queen with an escort of strange bees, you are introducing seven or eight bees instead of one; and is it not these strange bees (workers) that cause much more resentment than the queen herself? In giving an escort you have a queen accepted by a portion of the colony, however small it may be, to say nothing of the advantage of the same odor.

I feel myself much indebted to Mr. Bonney, for it was *his* method, varied to my "notion," which saves me many a good queen. I have known bees to kill their own queen when she was liberated, if all cells were not cut, so a caution is needed.

G. A. BOSTWICK.

Verbank Village, N. Y., Sept. 8.

THE METHOD THAT A BUSY HOUSEKEEPER USES FOR TRANSFERRING COMBS FROM THE L. FRAME TO THE DANZEN- BAKER; HIVE-MATS MADE FROM WINDOW-SHADES.

After brushing the bees off clean I take the hive holding them on a Daisy wheelbarrow up to the house, and do my work on the dining-table, using a hive-cover on which to put my L. frames.

After cutting out the comb the D. frame is put over the piece; and usually, when I lift up the frame, the comb comes up nicely. The fastenings will stay in until it can be fastened with two wires. The combs may be used over and over again.

I put the hive with the transferred comb lengthwise on the wheelbarrow, and they have never broken or slipped in taking to the yard.

I use an oyster-knife to open the hives; and when I take these wires off I slip the blade under the wire, and pry up a little until it comes unfastened. I take all the wires off before I take a single frame out to turn them over as they belong. The handle of an oyster-knife is about 4 inches long by $\frac{3}{4}$ inch square, and the three-inch blade is two-edged, dull, and pointed at the end. I had it made at the blacksmith's, and use it constantly. The handle is a hammer if need be, and the blade to pry or scrape with. I keep two, so if one is lost I still have one to use.

In working this way I keep a basin and my pancake-turner in it on the table by me; and from every frame I scrape up all liquid honey and pieces. I also have a basin of water with a good-sized cloth, to keep my hands clean; and in doing this I have every thing comfortable, and make no muss.

For mats I use some pieces of window-shades which were too wide for my windows, and had to be cut off. I sewed some

of these strips together, lapped one edge over the other on the sewing-machine, with long stitches. After ironing them with a hot iron they make fine mats. There is a paraffine finish on them that is just the thing.

When I am through I put the old frames in a hive at the other end of the yard, and leave a little opening for the bees to get at them to clean them up. On the cover of the hive with the transferred combs, I set the basin of honey and scraps, and over all I turn the cover that I used in cutting comb. In this way the bees will clean every thing up in good order, and with no robbing.

Sometimes the bottom-bar of the D. frame seems to be bowed out when I lift up the frame. I used to take it out and cut off a little more, but now I just press on the bar till it comes down all right. The comb is in better, and it squeezes the honey only by the top-bar, which doesn't matter.

MRS. C. A. S.

BITTER HONEY; BRUSHED SWARMS IN THE SOUTH.

In looking over your Sept. 15th number I notice your answers to my questions in regard to the bitter-weed honey, and it seems you have gotten the wrong idea about its being good for the bees during winter. It would be all right for them for winter stores provided we needed it, for it is a beautiful thick honey, but has the bitter taste, which is unpleasant.

In regard to brushed swarms I might add that I have tried them here with success. Here the bees swarm about April 15th, which is just at the beginning of a good honey-flow of about two to three weeks' duration, and a swarm hived at just this time usually gathers about two supers of comb honey. After this flow is over we have another interval of nearly a month during which there is a light flow, and then comes a fairly good flow, lasting about a month, when the bitter honey starts to coming in, and all good honey has to be taken off. Our bees never swarm here later than April 25th, and never during a heavy flow. Judging from what I read, I suppose they are entirely different from the Northern localities.

Under the conditions named I have found it very desirable to swarm all of the bees that are strong colonies just at the beginning of the honey-flow. My plan has been about as follows: Prepare the new hive, and place it in the location of the parent colony. Smoke the bees a little, and remove the super from the old hive to the new one, and then shake the bees from all but one of the frames, on the ground in front of the new hive, seeing that the queen goes with them. This plan leaves enough bees to take care of the brood in the old colony, which should be placed alongside of the new colony, facing at right angles, and in ten days it may be moved and used in making up new colonies, and all of the field bees will go to the new colony. In preparing

the brood-nest for the new colony I think I got best results where I used only six brood-frames the first week or ten days, and let all the frames be filled with full sheets of foundation except one, which should contain drawn-out combs. I tried one colony with all foundation, and the sections had combs partly drawn out, and the queen took up her abode in the super long enough to deposit eggs in several sections. When I used one frame of drawn comb in the brood-nest this trouble was avoided. My reason for using full sheets of foundation is that, in my opinion, the bees are not as well prepared for wax-building in brushed swarms as when they swarm naturally.

This plan has one advantage for me—I can swarm all of my bees when I have time, while if I waited for them to do it I could not possibly attend to them.

.Hazlehurst, Miss.

J. S. WISE.

THE ALKALI LANDS OF CALIFORNIA.

Friend Ernest:—Your Notes of Travel are always interesting, and always show a strong desire to state facts exactly as they are. Sometimes it seems you have been mistaken—have forgotten or been misinformed. Those little (?) willow-trees on the Flory ranch illustrate this fact. Those ten-year-old trees were good shade-trees in 1889; and Mr. Flory's old ram got much solid "amusement" by bumping his head against the trees, then perhaps a foot in diameter. As the land is rich and well watered they have made good growth since that time.

Your remarks on alkali are very clear for a tenderfoot. While Traver was never more than a third or a half the town that you speak of, it strongly illustrates what guesswork farming sometimes brings on surface thinkers. Our State University, Berkeley, Cal., can examine the ground and tell in advance how such land will turn out. Part of this county (Stanislaus) has enough alkali salts to ruin it completely when the "hardpan" is dissolved by irrigation, while we have some land that will last. Scientific tests are necessary in some cases, while in others experience and horse sense are sufficient guides.

W. A. H. GILSTRAP.

Modesto, Cal., Sept. 9.

WHY BEES SOMETIMES KILL THEIR YOUNG.

On page 778 the question was raised, "Why do bees sometimes carry out the young before they are hatched?"

I have such a case, and in looking the hive over found that they had hardly half a dozen cells of honey by the 15th of June. I put two sections of honey in a super, and, after uncapping a few cells, found that the process of carrying out young bees was stopped.

Several more that began to act in this way were stopped merely by feeding, so I made up my mind that the bees do this when short of stores.

C. K. CARTER.

Eagle Grove, Ia., Sept. 22.



ANOTHER PLUM STORY.

It was early in the morning. Earl was digging Triumph potatoes, and I was picking them up. Some of you may wonder that the president of The A. I. Root Co. should be *picking up potatoes*, a job that is usually given to the children or to the very cheapest kind of help. Why should a man who can, if he wishes, have a salary of—well, “considerable if not more,” as my good father used to say—why should such a man be picking up potatoes when he couldn’t earn (even at *two cents a bushel*) more than, say, 50 or 75 cents a day? Funny, isn’t it? Well, in the first place God’s sentence pronounced on Adam and his descendants, “In the sweat of thy face shalt thou eat bread,” I have often thought fell with tremendous weight on me. I can remember, even when a child, that I could not only not “eat bread” with any enjoyment, but it almost seemed as if I could have no real pleasure in life unless I was hard at work at something. Of late years it seems as if this work *must be*, at least a great part of every day, in the open air. I enjoy writing at my desk, as I am doing now, about so long, and then it must be “outdoorses.” Of course, I can *choose* my work, and I thank God for *that* privilege. My young friend Earl, for instance, must do what I bid him do, no matter how tired he gets of the one thing, hour after hour. He can stop work if he chooses, and have his pay stop; but that cuts off the bread and butter. But why not stand erect and do the digging myself, and let the *boy* get down in the dirt? Well, some of the time we do that way; but I rather like handling the red “beauties” myself. In this exceedingly mellow soil they are as smooth and perfect, most of them, as great red peaches, and I have just made an invention to relieve my back. I take a stout stave basket and place it on one corner so that I can rest my chest against the upper edge. Of course, I am on my knees in the soft dirt. Well, in this position I can lean forward and work with both hands. When there are no more within reach, with a froglike motion both basket and myself move forward a jump, and so on. I think the same thing may be done with a potato-box, but we have no boxes here as yet. In this way I can pick up pretty fast, and I can stand it for—well, say two hours. Earl can testify that I am not to be *dependent on* to do one thing very long at a time. It happened so this morning; for, just as I had got well to going, a man with a horse and buggy was seen coming toward us through the potatoes.

I think we will let him stand a minute and rest his horse, for he has driven almost a dozen miles thus early, while I go back a little and explain to our readers that Mrs.

Root is now in Ohio, and I have been for some days *alone* in the “cabin.” On another page there is more about it. I had been very homesick, not for the Medina home but for the Medina *woman*. Indoors—in fact, at every turn—I met something that made me sick at heart. She is coming back in just a week, but I was thinking that morning I just *couldn’t* wait *another* week. I *prayed* for my old interest and enthusiasm in the potatoes and other things, and then I went out and worked hard, just to “help God” answer my prayers. I *believe* he felt sorry for me, and pitied me,* and sent that man with the horse and buggy just to show his great love for me, poor and imperfect as I am.

It was Mr. J. P. Berg, the fruit-grower, who lives on the other side of the Bay. He said I was to get into his buggy and go over and see his crop of plums, ready to pick. When I told him there were reasons why I would rather get back that night he said:

“All right. We will see that you are back here before dark.”

“Why, friend B., that will be a drive of *forty-four miles* in one day, just to have me see your plums. Isn’t it more than I am really worth?”

Pretty soon I found that he, and, I think, the most of his family, are members of that church I have been trying to build up. They don’t come here to our church *building*, but it is the same denomination, and all his family of boys and girls seemed glad to see me and are in hearty sympathy with my endeavor.

Almost before I got out of the buggy I saw the plum-trees bending beneath their great loads. They were so large that they looked like apples, but they were *blue* apples, and not red or yellow. Of course, we had to have dinner before going into the orchard. The crop was already sold, on the trees, at \$2.00 per bushel. I tell you, friends, that is the way for a farmer to do business. Grow a crop of such excellence that the city men will go out and bid for it before it is matures. The plums were the German Prune and Grand Duke. Both kinds will keep several weeks, even after they are ripe and soft, without injury. What a contrast it was to sit down at that dinner-table, with a crowd of boys and girls (or, perhaps I should say, men and women), with the lonely meals I have been having at my home in the woods!

After dinner all hands went out to gather the fruit. Friend Berg has been years in the fruit business, and knows how to manage systematically. Four rather tall women (two of them his daughters) worked on a tree at once. They had baskets with hooks on the handles to hang on a limb. Now, besides these four nice-looking women there was a nice-looking boy and a girl. One of the two children picked the low-down plums near the trunk of the tree,

* As a father pitieth his children, so the Lord pitieth them that fear him.—PSALM 103: 13.

where the tall women could not get them conveniently; and the other child, with a ladder, gathered the plums that were rather too high up for the long arms of the tallest woman. How long does it take to pick a tree, with such an "outfit"? Well, I looked at my watch and judged it took about ten minutes to pick a tree that gave two bushels; and, say, fifteen minutes for a three-bushel tree. How is that, friends—\$6.00 for the fruit on a tree only four years planted, and the crop sold before it is picked? Mr. Berg keeps off curculio and rot by spraying—no bumping at all. I do not think one plum in a hundred was rotten. Even those on the ground were free from rot. The Grand Duke will average the size of small hens' eggs, and they hung on the limbs touching each other, like bunches of grapes. Mr. Berg trains and prunes all his trees low down, so the fruit is easily gathered, and the limbs often touch the ground, so there is very little breaking down. He has also a great crop of peaches, but scarcely a broken-down limb. One reason why fruit-buyers come to his place and buy his fruit is his nearness (only three miles) to Traverse City.

On our way home I met Mr. Dobson, whose plum-orchard I wrote up two years ago. He gave us an important item in regard to the value of spraying. On account of the excessive rain last spring he could not spray as much as usual. On one occasion they got at it for just half a day, during a critical time. They sprayed just *one side* of two rows of cherry-trees, and then rain came, so the other side of these trees was never sprayed at all. All these trees gave a fine crop on *one side*—none at all on the other. The cherries where he sprayed sold for \$25.00. So much for what can be done by spraying in half a day.

It was nearly night when Mr. Berg's eighteen-year-old son got me home, and I insisted that the horse should have a little rest and refreshment; but as he was going to be out after night the boy said he could stop only a few minutes.

Now, I know by experience that boys of eighteen *also* need refreshment when it gets to be about supper time. I ate the last of my bread in the morning, there wasn't a thing cooked, and my young friend could not wait, especially for any of *my* cooking. I happened to look up on a high shelf at the north side of the cabin, and spied a strange covered basket. It contained a loaf of nice bread, a nice pie, and a good-sized chunk of gingerbread. This, with some bologna I had just brought from the market, made us a nice "picnic" after our long ride. Our nearest neighbor, Mrs. Heimforth, sent the basket; and her boy, finding the house locked, set the basket up on the shelf. My good friend, what is it worth to you to have the good will of *all* your neighbors?

I should have said, in the proper place, the plums are shipped in bushel baskets with slatted covers, the same that are used

for peaches. A large factory (now running over hours) in Traverse City makes these bushel fruit-baskets for only \$1.00 per dozen; covers, where wanted, 2 cts. each additional. Mrs. Berg does the sorting, and she takes the responsibility of seeing that nothing is put in a basket before it is nailed up that isn't first-class. Just now there are in Traverse City buyers for all the peaches that may be brought in. The price is from 75 cts. to \$1.25 per bushel. A basket is taken from each load, at random, poured out, and the price offered from the looks of this sample. There are a *few* growers, however, who have gained such a reputation that their load commands the top price, without examination. Friend Berg did not exactly say so, but I judge he is one of that few. When we get right down to the bottom of it all (we might say, I suppose, to the bottom of the *basket*), Mrs. Berg's careful and faithful inspection is the explanation, and Mr. Berg gets all the credit. Even if she is the mother of several nice grown-up daughters, she is about as bright and nice-looking as any one of the entire lot.

Just one thing more: You may think it a very easy matter to grow trees bending beneath loads of plums as large as hens' eggs; but I questioned my young friend, Samuel Berg, on our way home (Samuel *belongs* to that church I am trying to build up), and I found his father is drawing manure from the stables in the city, winter and summer. The trees are sprayed and cultivated according to the latest and most approved modern methods, and the *whole family help*. Mr. B. has only about seventeen acres (less than a dozen in *trees*), and he can take care of all his land, and *do it right*, and at the proper time. If you are going to grow fine fruit you *don't* want a big farm, but you *do* want a wife and children (a good lot of the latter) who know how and like to *work* with fruit.

Storrs & Harrison's catalog (Painesville, Ohio, describes the Grand Duke plum as follows: "Fruit very large, of fine quality, free from rot, very productive. Ripens last of September."



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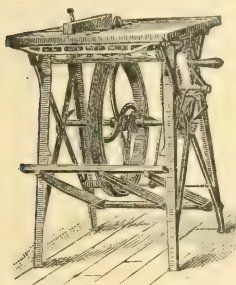
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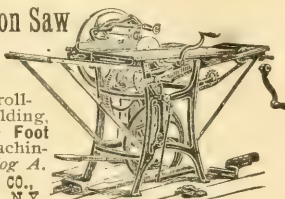
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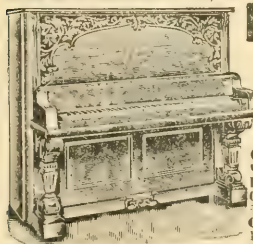
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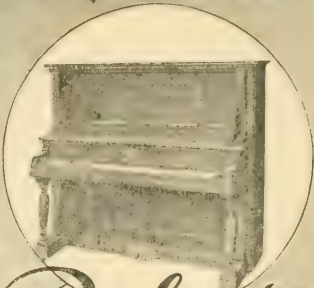


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Two Years for \$1.00.

After a man succeeds in publishing a good journal, the next step is that of getting it into the hands of the people, of getting them to reading it, and becoming acquainted with its merits. This can be done by advertising, sending out sample copies, circulars, etc. All this costs money. I think I am safe in saying that for every new subscriber I have received, I have paid out \$2.00 in advertising; hence I have often said that a publisher of a good journal could afford to send his paper one year free, for the sake of getting it into new hands. It would cost no more than other forms of advertising and would be very effective, but, for obvious reasons, this plan could not be put into practice, but I am going to come as near to it as I can. I have between 200 and 300 complete sets of back numbers for the present year, and as long as the supply holds out I will send a complete set, and the rest of this year free, to any one who will send me \$1.00 for the Review for 1903. For a few particulars regarding the numbers already published this year, read the following:—

There is not room here to say very much about the back numbers for this year, but I will mention one prominent feature of each issue.

January is a Colorado number; six pages being devoted to a beautifully illustrated "write-up," by the editor, of that paradise for bee-keepers. This issue also shows how to make a cheap hive-cover that will neither split, warp, nor leak, in any climate.

February contains the beginning of a series of articles by M. A. Gill, who last year managed 700 colonies of bees, and produced nearly two carloads of honey. These articles are written from the fullness of his experience.

March has an article by S. D. Chapman, on "What Makes Bees Swarm," that I consider the best I have seen on the subject. It gets right down to the foundation of the matter. In fact, so thoroughly does Mr. Chapman understand the matter

that he has so made up a colony that one half would swarm, leaving the combs deserted, while the other half would not budge.

April ushers in some typographical changes. The smooth, shiny, glazed paper was laid aside for a soft white paper that gives to printing a clean, tasty, tempting look. The frontispieces are printed in colors instead of somber black. The cover is of Court Gray printed in two colors—Umber and Milori blue.

May contains a five-page review of a book by E. A. Morgan, entitled "Bee-keeping for Profit." It was rightly named, the author getting right down to basic principles, and giving the chit of profitable honey production, particularly in the Northern States.

June shows how a man may practically defy foul brood; how he may keep bees in a foul-broody district, all surrounded by diseased colonies, yet keep his apiary so free from it and its effects as to secure a good crop of honey each year.

July has an excellent article by Mr. Gill on the management of out-apiaries for the production of comb honey, showing how the work must be generalized, yet systematic, and *done just a little ahead of time*.

August illustrates and describes the handiest and best bee-tent for circumventing robbers that I ever saw. It also has an article by Mr. Boardman on "shook" swarms, showing how we may practically take swarming into our own hands.

September illustrates and describes a cheap but substantial bee-cellar, built some thing like a cistern with a roof over it. This issue also gives some of the best papers read at the Denver convention, together with a lot of interesting items picked up at that convention.

October gives a three-page illustrated write-up of Dr. Gandy and his artificial pasturage. While on his way home from the Denver convention the editor of the Review spent three days with Dr. Gandy, using his eyes, ears, and camera, and this write-up is the result. If you want to know the truth of the matter, read this issue.

Remember that each issue contains dozens of interesting and instructive items aside from the ones mentioned.

Send \$1.00, and the back numbers for this year will be sent at once, your name put upon the subscription list, and the Review sent to the end of next year.

W. Z. Hutchinson, Flint, Michigan.



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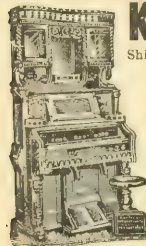
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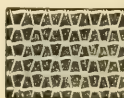
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WANTED.—Flint-lock muskets dated 1812, 1815, 1816. Will exchange modern fire-arms for same, or will buy. Address 216 Court St., Reading, Pa.

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WANTED.—Several positions are open for young men in apiaries in the West Indies. Write at once, stating experience, age, and other particulars.
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WANTED.—To hear from some one having Cuban bloodhounds for sale.
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WANTED.—Ten colonies, ten frames, f. o. b. Philadelphia. State price.
R. B. CHIPMAN, 227 Market St., Philadelphia, Pa.

WANTED.—A location for a custom saw and feed mill.
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WANTED.—To sell or exchange, a lady's Crescent bicycle; fine condition.
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WANTED.—To exchange apples for sweet potatoes.
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WANTED.—To trade 160 acres of rich, level, black land for bees. Write full particulars in first letter.
D. E. L'HOMMEDIEU, Colo, Story Co., Iowa.

WANTED.—To sell a mill property, water power, with considerable land, and houses, as desired. Good location for bees or for milling and feed business. For particulars address
I. L. POWELL, Millbrook, New York.

WANTED.—To send you mellilotus (sweet clover) seed at 10c per 2-oz. package; larger quantities quoted. Address
W. P. SMITH, Penn, Miss.

WANTED.—To sell 8-frame Dovetailed hives, empty, supers complete, well painted, part new, or will exchange for similar 10-frame hives; also a four-burner wickless oil-stove and Hallock weeder, both nearly new. All at a bargain.
A. P. WILKEY, Luzon, Ky.

WANTED.—A good reliable man to take a half-interest with me, as soon as possible, in a newly established apiary which I wish to enlarge. Must have the necessary cash, say \$300, and be well acquainted with the bee business. Don't delay.
W. S. COOPER,
123 South Flores St., San Antonio, Tex.

WANTED.—To exchange modern fire-arms for foundation-mills and foot-power saw, also wax and honey.
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WANTED.—To sell an apiary of 30 colonies, a lot of bee-supplies, 5 lots—with house, barn, and two shops—in a small village. Must be sold; a great bargain for some one. Address for particulars,
H. D. EDWARDS, Delhi, Ill.

WANTED.—To sell 200 swarms of Italian bees. Also 7000 lbs. white extracted honey in 60-lb. cans; 5 acres choice improved land, and house and two lots; or will trade for mercantile business. Don't write unless you mean business.

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WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & Co., Chicago, Ill.

WANTED.—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drop honey-cases for plain Danz, and 4½×4½ sections; made for Pan-American. For prices, etc., address **ORELL L. HERSHISER,**
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WANTED.—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid.
O. H. HYATT, Shenandoah, Ia.

WANTED.—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited.
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WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card.
N. A. KNAPP, Rochester, Ohio.

WANTED.—We want to hear from those having choice comb honey to sell, stating quantity, quality, size, and style of sections, and how packed. If not yet packed for shipment state how soon you can have it ready, and the price asked delivered here or free on board at your place.

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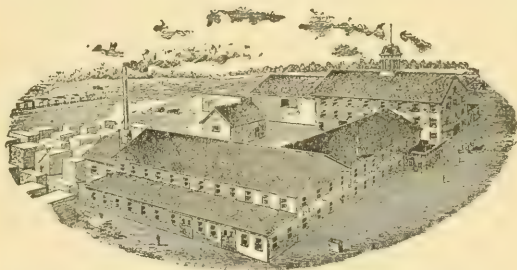
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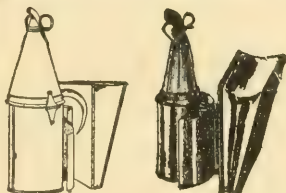
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Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

DENVER.—No. 1 white comb honey, per case of 24 sections, \$3.10 to \$3.25. Fancy white comb honey scarce, and brings \$3.50 per case. Extracted, 7½¢@8¢. Beeswax, 22¢@26¢.

THE COLORADO HONEY PRODUCERS' ASS'N.,
Oct. 20. 1440 Market St., Denver, Col.

BOSTON.—Our honey market remains firm, with good demand and fair stocks on hand. Honey is not coming forward as fast as usual, and the tendency of prices is steady. We quote our market as follows: Fancy white, 1-lb. sections in cartons, 15¢; No. 1, 15¢; No. 2, very light supply, 14¢; glass front sections generally 1¢ less than this, light amber, 8¢; amber, 7½¢. Extracted honey, light supply.

BLAKE, SCOTT & LEE.
Oct. 20. 31, 33 Commercial St., Boston, Mass.

CINCINNATI.—The demand for comb honey is good, and prices are a little better, as the supply does not meet the wants. Extra water-white fancy is selling as high as 16 and 17 cents; other grades less, according to quality. Extracted is very active, and prices are a little better. Amber, 5½¢@5½¢; alfalfa, 6½¢@7¢; white clover, 7½¢. Beeswax, 28¢. **C. H. W. WEBER.**

Oct. 27. 2146 Central Ave., Cincinnati, Ohio.

ALBANY.—Honey receipt's here are light—not equal to demand at present—and price ruling high. Fancy white, 16¢; No. 1, 15¢; mixed, 14¢; buckwheat scarce at 13½¢@14½¢. Extracted, white, 7¢@7½¢; mixed, 6½¢@7¢; buckwheat, 6½¢@7¢. Beeswax, 30¢.

MACDOUGAL & CO.,
Oct. 20. 375 Broadway, Albany, N. Y.

CHICAGO.—The advance noted in our last quotation has been maintained, and there is a very good demand for honey at the present time. No. 1 to fancy white comb brings 15¢@16¢ per lb., with the lower grades selling at from 2 to 3 cts. less. This includes the light amber. Dark grades of amber sell at about 10¢@11¢, and buckwheat 9¢@10¢. Extracted is steady, with white bringing 6½¢@8¢, according to color and quality. The ambers bring from 6¢@7¢; dark, 5½¢@6¢ per lb. Beeswax in good demand at 30¢ per lb.

R. A. BURNETT & CO.,
Oct. 18. 199 South Water St., Chicago, Ill.

KANSAS CITY.—The receipt of comb and extracted honey is light, and the demand steady. We quote fancy white comb, 14½¢@15¢; No. 1, 14¢@14½¢; No. 2 white and amber, 13¢@13½¢. Extracted white, 7¢@7½¢; amber, 6¢@6½¢. Beeswax, 24¢@26¢. **C. C. CLEMONS & CO.,**
Oct. 20. 306 Grand Ave., Kansas City, Mo.

DETROIT.—Comb honey, A No. 1, 17¢@18¢; No. 1, 15¢@16¢. Extracted, white, 6½¢@7½¢; amber, 5½¢@6½¢. Beeswax, 26¢@28¢. Very little honey in market; demand good.
Oct. 20. **M. H. HUNT & SON,** Bell Branch, Mich.

SAN FRANCISCO.—Comb honey, 10¢@13¢. Extracted water-white, 6½¢@7¢; light amber, 6¢@6½¢; dark amber, 4¢@5¢. Beeswax, 28¢. Buyers report all the honey bought up in the southern end of the State, and carlot orders "declined with thanks."
Oct. 22. **E. H. SCHAEFFLE,** Murphys, Calif.

PHILADELPHIA.—Comb honey is getting very firm, as the demand this season is greater than usual at this time of year. We quote fancy white comb, 16¢@17¢; No. 1, 15¢; No. 2, 14¢. Extracted, fancy white, 8¢; amber, 7¢. Beeswax, 28¢. We are producers of honey, and do not sell on commission. **WM. A. SELSER,**
Oct. 21. 10 Vine St., Philadelphia, Pa.

NEW YORK.—Fancy comb honey is worth 16¢; strictly No. 1, 15¢; off grades, 13¢@14¢; buckwheat, 12¢@13¢. Extracted, Southern, in barrels, 4½¢@5¢ per lb. Beeswax 27¢@28¢. **FRANCIS H. LEGGETT & CO.,**
Oct. 21. Franklin and Varick Sts., New York.

FOR SALE.—Sixty-five L. frames of clover and goldenrod honey; well filled; no pollen; suitable for winter feeding. Price 10¢ per lb., including frame. No bee-disease in vicinity so far as known.
O. BECKMAN, Box 14, Portland Mills, Elk Co., Pa.

FOR SALE.—1500 lbs clover extracted honey at 8¢; in small lots, 8½¢.
W. D. SOPER, Route 3, Jackson, Mich.

FOR SALE.—380 barrels prime Mexican honey. Samples and prices cheerfully furnished. State quantity wanted. **STROMEYER & METZEL,**
31 South Water St., Philadelphia.

FOR SALE.—Several thousand pounds comb honey in Danzenbaker 4×5 sections. Shall commence filling orders in August. **WM. MORRIS,** Las Animas, Col.

FOR SALE.—White extracted honey from alfalfa in 60-lb. cans, at \$4.50 each; light amber honey mixed with Rocky Mountain bee-plant, fine flavor, \$1.20 each. Prices on small cans and pails on application.
M. P. RHOADS, Box 216, Las Animas, Colo.

FOR SALE.—Fine quality of extracted honey, both clover and sweet clover, in 60-lb. cans, at 8¢; also bees in L. frames. Do not send local checks.
DR. C. L. PARKER, Sta. A., R. F. D., Syracuse, N. Y.

FOR SALE.—Extracted honey, from alfalfa, at 7½¢ for No. 1 select, 7¢ for No. 1, 6½¢ for No. 2; discount on 100-lb. lots. Send for sample.
D. S. JENKINS, Las Animas, Col.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer. **SEAVEY & FLARSHHEIM,**
1318-1324 Union Avenue, Kansas City, Mo.

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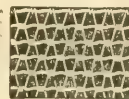
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Lewis White Polished Sections are Perfect. Last winter's cut of Wisconsin basswood is the whitest we have ever seen. When you order No. 1 Sections from us you will get a strictly No. 1 grade in both workmanship and color.

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A Suggestion. Do not put your money into *new-fangled* bee-hives, but buy a simple, serviceable, and well-made hive such as the regular Dovetailed Hive, arranged for beeway sections. Honey-producers in Colorado, one of the largest honey-producing sections in the world, use this style.

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| 1/2 " " " " " | 3.75 | 1-lb. Keystone, spring top, gross, | 5 25 |
| 3/4 " " " " " | 3.00 | 1-lb. Octagon, spring top, gross, | 5 25 |
| | | 1/2-lb. | 4.75 |

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| 100 lbs. white sweet-scented clover, | \$10 | 100 lbs. White Dutch, | \$20 |
| 100 lbs. yellow " " " | \$15 | 1 oz. Catnip seed, | 10c |
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A JOURNAL DEVOTED
 TO BEES AND HONEY
 AND HOME INTERESTS

ILLUSTRATED
 SEMI-MONTHLY

Published by THE A. I. ROOT CO.,
 MEDINA, OHIO.
 \$1.00 PER YEAR

VOL. XXX.

NOV. 1, 1902.

No. 21



FLOOR-BOARDS have rotted as much during the past season as in ten ordinary seasons. So much wet.

THAT ELECTRIC RAILWAY for out-apia-ries, p. 857, seems to be a fine thing. Wonder what I could buy one for.

OCTOBER 15 I saw bees working on red clover. [Red clover is a honey-plant that hangs on pretty late. I too have seen bees working on it up to time of frost.—ED.]

THE COMING WINTER must do a lot of killing-out if there is to be no clover next year. At present the ground is beautifully carpeted with a luxuriant growth. [Same here, and, in fact, the same condition is reported throughout the rain-belt.—ED.]

RAMBLER reports, p. 861, that he smoked his first cigar without the least nausea. Now the question is, what was that cigar made of? or else what is Rambler made of? In any case, A. I. Root might offer him a smoker to swear off. [But Rambler says he did swear off.—ED.]

"HONEY is capped whiter," is a claim made for forced swarms, p. 864, and it is made in such a way as to be understood as meaning whiter than with natural swarms. It is capped whiter than in a hive with black combs, but no whiter than in a hive with a natural swarm.

RAMBLER'S SLATE, page 860, speaks of "honey, white, thin, tart," and a few words further along about "extracted honey only 27 cts. per gal., 2 cts. per lb." That last makes 13½ pounds to the gallon; and if "thin" honey weighs that, what does thick honey weigh in that "locality"?

PHACELIA, introduced from California into Germany, seems to be constantly growing in favor. Its praises are sung in all

the bee journals, as a forage and honey plant, and also for plowing under green. Sown in early September it blooms about Oct. 20, rather late to benefit the bees. It can not endure German winters, but the self-sown seed comes up in the spring. [See what Cowan says of it in this issue.—ED.]

G. M. DOOLITTLE gives, p. 847, the fullest *expose*, I think, I ever saw of the various causes of having combs in sections built to separators. As I read it over, it occurred to me that for years I had had no trouble of that kind to speak of, whereas formerly it was unpleasantly common. I *think* the secret of it is bottom starters. With a bottom starter present, the bees fasten the two starters together about the first thing, and then there's no chance for the section to be swung over to the separator.

SHOOK SWARMS are being pretty thoroughly shaken up just now; and while the shaking is going on it would be well if the question could be settled as to whether it is best or not to have a frame of brood given to the swarm. Will the bees often desert without it? I used to give such a frame and then take it away a few days later, as almost invariably the bees started queen-cells on it. It is just possible, however, that if it had been left there would have been no swarming notwithstanding the queen-cells.

A BLEND of honey, as favored on p. 855, if kept the same from year to year, is certainly better than to change abruptly from clover to basswood or something else; but if you had to change from one kind to another you'd have to change the blend as well. No doubt, however, the change in the blend would not be so noticeable as the other. [If one buys honey every year, and buys a little more than he actually produces, as we do, it is quite an easy matter to keep the regulation blend. If you every year buy a little alfalfa and mix it with your white clover and cucumber, even if your clover did fail you, or your cucumber, the alfalfa flavor being so pronounced and pleasant will still pass muster with your old customers, especially if they know you.—ED.]

A LITTLE misunderstanding seems on p. 844. I think Geo. Shiber and I are agreed that the queen prefers old black comb for laying eggs in; the bees prefer it for storing honey in; they prefer it for a winter nest, and in every respect it is preferred by queen and bees to new comb or foundation except for the starting of emergency queen-cells. [Your comment on page 844 reads just as though you disagreed with Mr. Shiber; but in reading it over again I now see how you probably intended to agree with him. But I am of the same opinion still—ferninst you both.—Ed.]

FOUR POINTS in favor of forced swarms are given, p. 854, and they're good, all but the third: "that starters are just as good as full sheets of foundation, under some conditions at least." That has no bearing upon the case whatever, for it applies just as well to natural swarms. [Correct. But I could not forbear giving emphasis to the fact that a bee-keeper might save some money by using only starters. A penny saved is a penny earned; and if any class of people are entitled to all they can earn by short cuts, it is our friends who are trying to get bread and butter by getting honey and putting it on the bread and butter of other people.—Ed.]

IN SHAKING bees off combs when making a forced swarm, there is likely to be more or less honey shaken out upon the bees, and some speak of this as if it were a thing to be regretted. On the other hand, M. A. Gill, p. 850, seems to feel all the jollier about it the more the bees are doused with honey. Certainly it is more like natural swarming to have the bees well loaded with honey, and I suspect such bees are just a little more contented when they find their combs of brood gone. It is a common practice in some parts of the world to feed a swarm for the first day or two, and it is no doubt a profitable thing to do. It ought to be a good thing for a forced swarm as well.

MR. EDITOR, you misunderstand my position with regard to forced swarms, p. 844, if you think I have the slightest desire that they "be turned down." Bless your heart, I have just as much respect for them as you have—yes, more. You are probably wise in being a little cautious about claiming too much for them; but after they have been so thoroughly tried by cautious German bee-keepers I have no hesitation in saying about them some things that you precede by an "if." Forced swarms are away ahead of natural swarms; and the nuisance of the latter may be largely avoided by anticipating them with the forced swarming. But a colony that will stick right to its knitting, without any thought of swarming, is ahead of either natural or artificial swarming; and all through my bee-keeping life I've been chasing after the non-swarming will-o'-the-wisp, and so I can't be so very enthusiastic about any thing that doesn't point straight in that direction. [But you spoke just as though the method had been

a failure with you, for you said, referring to these same brushed swarms, "I was never very enthusiastic about them." In speaking so forcibly in favor of them, I endeavored to "brush" you into line. But I am very glad to know if you are already and have been in the front rank of the brushers or shakers. You still feel, however, that a colony that will "stick right to its knitting, without any thought of swarming," is ahead of either natural or brushed swarms. But, say, doctor, what is the matter of tinkering up a colony by brushing, shaking, or forcing, so it will not have any "thought of swarming"? Will not such a colony do just as well as a colony not tinkered up that never has thought of swarming? or, in other words, what will be the difference? If both sets of bees are energetic, and keep on working without thinking of swarming, why shouldn't both, other things being equal, be equal?—Ed.]



But even if *our* bright days pass,
Bringing winter drear,
It's always noon and summertime
Somewhere on the sphere.

Centralblatt reports a great many cases of robbing of hives, but by two-legged thieves. The bees are first smothered with fumes of sulphur, and then the honey, if any, is taken away. It is proposed to set a premium on the heads of the thieves.



BEE-KEEPERS' REVIEW.

The issue for October is one of special interest to all bee-keepers, as it contains a full account of a visit made by the editor to the home of Dr. J. L. Gandy, Humboldt, Neb., during the fore part of September. We have a view of Dr. Gandy in his apiary near home, already shown in these columns; a picture of the doctor's home; a patch of catnip in the orchard; a view of a field of buckbush; a load of catnip from which the seed is to be thrashed; a view of the finest patch of catnip found by Mr. Hutchinson, near the hedges; a view of one of Dr. Gandy's out-apiaries; a picture of an orchard on one of the doctor's farms. The description accompanying all these views is very readable. Mr. Hutchinson infers that there are no large fields of catnip around Humboldt, but that the aggregate of the straggling patches must be very considerable. This was the opinion of the editor of this journal, who was at Dr. Gandy's at the same time Mr. Hutchinson was. As to their reception at the Gandy homestead, Mr. Hutchinson says:

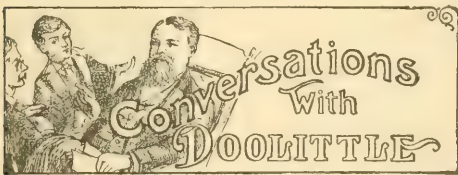
At Dr. Gandy's. Mr. Whitcomb, myself, and Bro. Root were treated right royally. We were taken to his home, every hospitality extended, a team secured, and nearly the entire time spent in driving about the country visiting his farms and apiaries. Every facility was afforded us for learning the truth in regard to his bees and the artificial pasturage that has attracted so much attention.

Mr. F. E. Brown, of Hanford, Cal., makes a strong plea in favor of commercial organization among bee-keepers. Among other advantages to be derived therefrom is the following:

One great point of inducement will be the matter of the *guarantee* that we shall be able to place upon our honey. As it now stands, a large amount of the extracted product is tampered with before it reaches the consumer, thus spoiling the flavor by adding foreign material, and increasing the output, and greatly lessening the consumption. If our honey is all packed, after being graded, and sealed with a wax seal bearing our brand, put up in packages that will suit the consumer, then all the honey that does not have our brand with the wax seal will be left for the man with the glucose, and, naturally, will be sold at a smaller price, that will compel all to come into the pool; it will do away with all adulteration of honey, because there will be no honey that they can buy to thus adulterate.

Mr. J. M. Rankin, who has been for a long time the foul-brood inspector of Michigan, or, rather, inspector of apiaries, has resigned in order to devote all his time to work in a sugar-factory. Mr. Hutchinson has been appointed to fill the vacancy, and there is no doubt he can do it in a very creditable manner.

One of the most prominent lady bee-keepers in the country is or was Ada L. Pickard, of Richland Center, Wis. But the swarming fever struck that homestead, and Mr. and Mrs. Nathan Boggs will hereafter be hived in Chicago.



HOW FAR APART SHOULD BEES BE KEPT TO INSURE PURITY?

"Good evening, Mr. Doolittle. The evenings are getting to be quite long now."

"Yes, they are, Mr. Jones; and the winter is drawing on apace. It will soon be time to set the bees in the cellar. Are yours all in readiness?"

"Not quite. I have a few light colonies which I had calculated to double up; but the weather keeps so cold all the while that I do not have a chance to do this."

"Are the bees all in the same kind of hive?"

"Yes."

"Well, you need not wait for a warm day, then; for all you have to do at this time of the year is to set one of the hives right

on top of the other on any cool day, and the job is done."

"But it would not do to leave them like that for winter, would it?"

"No. But, having them all together, all you have to do is to separate the hives on any day when the mercury rises to fifty and above, and set the combs you wish the bees to winter on in one hive. If you smoke the bees quite thoroughly, very few will take wing during the handling necessary to do this."

"Yes, I understand that part; but how shall I get the bees off the rest of the combs without losing them, as it will be too cold for those which may fly when I shake them off the combs, and also too cold for those to run in which may fall a little way from the entrance."

"You don't need to shake the combs in front of the hive as you do in the summer time."

"How shall I get the bees off, then?"

"Take an empty hive and set it on top of the one that you have the combs in ready for wintering, and take each comb, as you are about to shake the bees off, and lower it down into this empty hive before you shake it, when, during shaking, the bees will fall on top of the frames below, with scarcely a bee taking wing, and all will run down where you wish them, especially if you use a little smoke when all of the bees have been shaken in. The few which do fly above the hive will generally have strength enough to fly to the entrance, when all are where you wish them. To be sure, it is better to do this work before cold weather arrives; but it is also well to know how you can handle bees on days when they do not readily fly on account of the cold. But you must not attempt this at a time when the mercury is much below 50."

"Well, I am glad we touched on this subject; but that was not what I came over for. I find I have a very choice strain of Italian bees in my yard this fall, and I am desirous of keeping them pure. How far apart from other bees must they be kept in order not to have my queens mate with drones from other apiaries?"

"This is a question which confronts every bee-keeper who is desirous of keeping his stock pure, or the one who wishes to improve his stock by a careful selection of the best out of his own yard. It is also one upon which the doctors in apiculture disagree."

"How can any disagree? Is it not a matter of easy finding out?"

"It may be such under certain circumstances; but in the absence of such there can be little more than guesswork."

"But do not all have these?"

"If they do they talk very strangely at times. For instance, a man who is considered authority on queen-rearing once wrote: 'There are some who entertain the idea that a race of bees can not be kept pure unless they are isolated several miles from all other races. I have tested this matter pret-

ty carefully during the last twenty years, and have found that half a mile is as good as a much greater distance."

"I don't believe that. Do you? How did he come to any such conclusion?"

"He went on to state the length of time the queen was gone from her hive on her wedding-trip, from which I suppose he reached his conclusions. He gave this time as five minutes, from which I judge that he thought a queen would not fly over one mile in that time, or half a mile and return in the five minutes."

"But what about the flight of the drones? Don't they play any part in the matter?"

"Regarding the flight of the drones he wrote: 'Drones will sometimes fly a mile or more, but queens will not.' But about the length of time it took the drone to fly that mile he was silent."

"But what was to hinder those drones from being that mile from home when the queen got to the end of her half-mile? No wonder you said such was guesswork."

"And there are many more who think that from half a mile to three miles is all right; but I have knowledge that says the distance must be greater than any yet named."

"What about that knowledge?"

"One fact is always stronger than many theories, or any thing based on supposition; and so I will lay a fact alongside of what we have been talking, and allow you to form your opinion as to which is right. My experience dates back to where there were no Italian bees nearer than five miles, I keeping only black bees. In other words, my original stock was all black bees when I procured it, and so continued until Italians were introduced five miles away. Upon the introduction of these Italians, about one out of ten of my young queens gave hybrid bees, or those which were part yellow and part black. Not long after this a man living four miles from me purchased twenty colonies of Italian bees, increasing them that year to fifty colonies. The year following I found nearly a third of my young queens giving hybrid bees."

"Well, those are truly facts that are worth remembering, and show conclusively that, if any race of bees is to be kept pure, said race must be more than five miles away from any other bees. But suppose there are other bees nearer than this, what can be done then?"

"The only thing is to get the owner of such bees to allow you to put queens of your race into each hive of his bees, and then you will be master of the situation, barring some colony that may be in some cave or hollow tree. And many a queen-breeder has done this very thing of Italianizing all the bees all about him, at a cost of much labor and money, that he might rear pure queens."

"I thank you very much for this little talk; but the time has come when I told Mrs. Jones I would return, and I will go. Good evening."



AMOUNT OF HONEY NEEDED IN THE BROOD-NEST.

The Prolificness of a Queen Dependent on Temperature; Bees Going into the Supers; Queen Laying Eggs in the Super, etc.

BY J. M. GIBBS.

Mr. Root:—I notice on page 588, July 15, also page 676, Aug. 15, that Dr. C. C. Miller is "at sea" as to the proportion of honey and brood-nest area in brood-chamber (in frames of comb) at different seasons and under varying circumstances. After some years' careful study and observation I am convinced that the solution of the problem is almost entirely one of inside hive temperature. We know that in cold or cool weather the brood-nest is small compared with what it is in warm weather. We also know, or should know, that this nest or brood-center must be held at all times at the same temperature, no matter what the outside temperature may be; and to observe their brood-center as the temperature goes up or down, whether advancing to the honey season or warm weather, or retiring after the honey season is over, is to prove the above statement to be correct.

It is clearly a matter of temperature when the queen decreases the circle of egg-laying, thus allowing the bees to fill a larger space under the top-bar with honey; whether the temperature is lowered by cool weather or by swarming, and, as is often the case, by careless operators allowing the air to circulate through the hive, lowering the temperature below the point where the bees can counterbalance by the heat of their bodies. And I have also observed that this nest is decreased in size when work is begun in the supers, simply because the temperature has been lowered in the brood-chamber by a larger number of bees being transferred to work in the supers, it being necessary for a number of bees sufficient to gain and maintain a comb-building temperature at that point.

The prolific queen does not lay eggs nearer the top-bar than an unprolific one, as such, but because she is likely to have reared a larger colony, which large colony is capable of heating a larger area of brood-nest than a smaller one. If you will transfer a prolific queen from her large colony to a small one she will circumscribe her nest-area to fit the capacity of the small colony to heat up and care for brood; or if you will put a poor or unprolific queen into a large colony she will enlarge upon her former nest-area, as her colony can main-

tain a brood-rearing temperature; and as a proof of the statement here advanced she will deposit more eggs, under favorable circumstances, than the better queen will under unfavorable circumstances; and in either case the top-bar will be approached or receded from as the temperature inside the hive is raised or lowered from any cause.

It is a matter of inside hive temperature when bees go into supers containing extracting-combs more readily than they go on to foundation in those frames, and more readily into empty frames with foundation than into sections with foundation. Where the combs are already drawn out, honey can be stored by a few bees at a temperature much below that required to build comb, thereby allowing a smaller colony to care for nest-area, and send up a force to store honey in the super; but when it is necessary that comb should be drawn out, then this same colony must wait until the outside temperature raises the inside temperature, or until the bees have increased in number sufficient to send up a force large enough to maintain a comb-building temperature in this same super, and at the same time care for the hive below.

Bees dislike sections for the simple reason that it disturbs the temperature of the hive beyond the conditions in extracting frames to furnish enough bees to cover the wooden partitions (which are greatly in their way), in order to get together in sufficient cluster to produce and maintain comb-building heat; and in most instances, if not in all, a separate detachment of bees for each section is necessary before they can do much work in them; and, too, the weather must be warm before these little "squads" of bees can produce enough heat to build comb in the sections.

It is a matter of inside hive temperature when combs are not built down and fastened to the bottom-bar. The bees can not build down any further than they can produce and maintain a comb-building temperature. To prove this, hive two swarms of about the same size, and under nearly the same circumstances, and give one of them an all-round entrance at the bottom, and the other a one-end entrance, and note if the first mentioned will build down to the bottom-bar, and if the other will not build down and fasten combs to the bottom-bar. Why this difference?

It is impossible for the bees to produce and maintain in an all-round-entrance hive (with free circulation of air) sufficient heat to enable them to build comb down to, and especially to *fasten* it to the wooden bar. The temperature can be produced, and held in the other instance, and especially will the comb be filled out, and fastened at the closed end of the hive.

It is a matter of temperature when queens do or do not go up into supers to lay eggs. If the inside temperature of the super is high enough to hatch eggs and rear brood she will go up; otherwise she will not. Temperature is her first consideration. If

the temperature necessary to rear brood were no higher than that to store honey or build comb, supers without brood would be the exception instead of the rule.

I am aware that bees can lower the temperature in their hives by their own exertions, and that this is often necessary in the largest colonies and in the hottest weather.

"The idea seems to prevail that there is an advantage in shallow top-bars" (page 588, July 15). I beg leave to suggest that there is an advantage in any thing that lessens the distance a cluster of bees must move (in concert) so as to be able to produce the all-important temperature, so often mentioned in this article, that is necessary to build comb.

Deep top-bars with air circulating over them, as when the super is on, can not in many instances be brought up to a comb-building temperature, full length of the frame, to say nothing of brood-rearing near it, so the bees, in my observation, store honey down to the point where the queen stops laying, and she stops at the point where the temperature gets too low for her purpose.

One queen reigning supreme and alone in a hive is suggestive of but one nest or brood-center; and to compel the bees to produce a second heat-center, and possible brood-center, is to suggest to them another queen; and if you will exclude the reigning one, and give the bees the means, they will rear one for this center or (to them) new hive. I feel sure they will rear just as good a one as the one below. And why they would not do so under normal conditions, and produce the best of queens, is more than I can comprehend, Mr. Alley to the contrary notwithstanding.

Bees will not hesitate to cross honey and wide top-bars as such, but because of the difficulty they encounter in transferring a heat-center so great a distance.

I am fully convinced, both by experience and observation, that a close study of inside hive temperature will settle many of the questions now awaiting answers among bee-men; and when this matter of temperature is well in hand the aim of the inventor along these lines will be to conform to the perfectly natural requirements of the bees rather than to the caprice of the operator; and, further, I now predict that, when all is known that may be known of this inside hive temperature, and its bearing on bees and honey, the present hive will change its shape and proportions to that required by the bees.

Statesville, N. C.

[There is a great deal of sound sense and orthodox teaching in what you say. There is a tendency among bee-keepers, as well as among supply-manufacturers, to make hives warmer. Mr. Danzenbaker has long been an advocate of warm brood-nests, and to a certain extent his hive is double-walled. While this is true, he now proposes to go further and put on an outside protecting-case that will telescope clear over the super

and brood-nest, to make it still warmer. He also believes in the practice of having a wide entrance so as to have the warmest part of the hive in the super so the bees will be compelled to carry the honey where it will be in marketable shape for the master.

But when you refer to deep top-bars as being an obstruction, have you made experiments to prove the statement? A piece of wood $\frac{7}{8}$ square can be kept just as warm as the same cubic capacity of sealed comb honey. If any thing, it will be less a conductor of heat. After having traveled many thousands of miles, and looked into the inside of hundreds of hives having thick top-bars, it convinces me there is no real difference so far as the inclination of the bees is concerned to go into the supers. While theoretically there might be a difference, that difference is so slight as hardly to be worth taking into the calculation.—ED.]

BRUSHED SWARMS.

The Early History of Them in Europe; the Advantages of Large Hives in Connection with the Method; Greiner's Objection.

BY L. STACHELHAUSEN.

IN GLEANINGS of October 1, different beekeepers write for and against brushed swarms. At first I will say a few words about the history. That we can take from a strong colony all the frames of brood except probably one or two, and give empty combs or starters in their place, was known long ago, and this is the same thing as a brushed swarm set on the old stand, and the same thing as the driven swarm forced from a straw skep, and known more than 100 years ago. Gravenhorst made a step in advance, advising a way by which the bees brushed or shaken from the combs could be set on a new place and would stay there, at least the greater part of them. This, too, is twenty or more years old. I myself described this method in the *Apiculturist*, 1884, page 97.

At present the forming of certain brushed or shaken swarms has a certain purpose, and is new in this respect: My idea is to use large hives during the spring for the production of comb honey in sections. In these large hives we gain two advantages: 1. The colonies develop in the spring in a natural way in these large hives better, and get stronger than in small hives, in spite of all the spreading of brood, stimulative feeding, and other troublesome work as recommended by Doolittle and others. 2. From these large hives we are nearly sure to get no swarms before the main honey-flow.

Now we have another consideration: These large hives or brood-chambers are not practical for the production of comb honey in sections, if we give the section-supers simply on top of the old colonies. This is well known, and it is the reason why Doolittle manipulates his frames in the spring.

For many years I found that I could get the best and most honey in sections from strong swarms, if they appear just when the main honey-flow commenced. Then I asked myself, "Why, then, do you not form swarms artificially at just the right time, and still use the advantages of large hives in the spring?" In this way I gained another advantage. I was nearly sure to get no swarms at all from the colonies worked for comb honey, during the honey-flow, and just this was one of the main difficulties in producing comb honey. This whole idea was new at that time, and it seems that the advantages, as I saw them years ago, are recognized just now.

About the drawbacks of brushed swarms, Fr. Greiner is afraid of absconding. He says 20 per cent turn out to be failures. During more than 20 years I formed surely several hundred brushed swarms on the old stand as well as on new ones. Only one of them absconded, and settled like a natural swarm on a limb of a tree near by. It was a very strong colony, and I had given them one brood-comb and a very small space for brood-chamber, separated from the supers by a queen-excluder. I removed the brood-comb, enlarged the brood-chamber, and hived the swarm again, and every thing went all right. Some years I had trouble from absconding of natural swarms; but with brushed swarms I never had any difficulty. Gravenhorst recommended removing the brood-comb the first day after forming the swarm, because this brood-comb could cause absconding of the swarm. This may be true in his locality. Here I do not do it, and have no trouble. Of more importance, it seems to me, it is to have the bees filled with honey and to give to the swarm sufficient room. I give them so much room that the bees can form a cluster like a swarm.

As soon as the bees commence to build combs, and some eggs (or, still better, some young larvæ) are found in the newly built cells, we can contract the brood-nest. For this purpose a divisible brood-chamber is very handy. At first I give two of my stories, and a few days afterward I remove the lower one.

"A brushed swarm is also apt to build a large lot of drone comb." So says Mr. Greiner. I could not observe this. I never found any difference in this respect between artificial and natural swarms; but if the queen is old, the swarm will commence to build drone-combs sooner than if the queen were young and prolific. Such old queens will be superseded, probably, the same season. For getting mostly worker combs we need a prolific queen, a good honey-flow, a limited brood-chamber, and the brood-comb given at first must be removed the next day. Nevertheless, I am not sure yet whether it will pay or not to let the bees build natural combs at all. If we use a queen-excluder between lower story and supers, and a contracted brood-chamber, we can probably give full sheets of foundation, without any

loss of the honey crop, and do away with all the drone comb, without further work.

Some are of the opinion that a colony should not be brushed or shaken before queen-cells are started. In the small Langstroth hives the starting of queen-cells will be a sign that the size of the hive (too small for the development of the colony) has caused the swarming impulse. My large hives give an unlimited space for development, and consequently, in most years, no queen-cells are started at all; but the colonies are *strong* when the honey-flow commences. If I should wait for starting queen-cells I would not get any brushed swarms nor comb honey.

It was recommended to brush all the bees from the combs. I never tried this—was afraid a large part of young brood would be lost, even in our hot climate. I do not think any thing is lost by being on the safe side, and have some few bees remaining on the combs. The old bees will soon fly to the new swarm, and only the young bees remain on the brood combs. Nine or ten days afterward a large part of these bees can be united with the swarm, and after ten days again the rest of them. In this way all the bees can be utilized for the swarm, and all increase prevented. Of course, the brood-combs can be utilized in other ways for strengthening weak colonies; nuclei can be changed to strong colonies; they can be set over an excluder, and queen-cells raised in this super *a la* Doolittle, etc.

In criticising this method we should not forget that its purpose is the production of as much comb honey as by any other plan, and at the same time do away with all swarming, so we do not need even a watchman in an outyard, and are not forced to be there at a certain day. This was not possible before, and nobody thought that, by the use of the well-known practice of brushing swarms, this problem could be practically solved. If we produce extracted and comb honey in the same yard we do not even depend on these brushed swarms. We can form our swarms for comb-honey production in other ways; some of them are even preferable. We can make the swarms as strong as we like them. We can give them a young fertilized or unfertilized queen at will. So we see that the forming of brushed swarms is not the main point of the method recommended by me some years ago.

Converse, Tex., Oct. 8.

[Mr. Stachelhausen is evidently the pioneer in the forced, brushed, or shook swarm idea in this country. While he may not have been the first one to advocate it, he was the first one to give it such prominence that it took hold in America. Recently some one wrote me, complaining that he himself was the author of the brushed or shook swarm method, and that I had failed to give him proper credit. But Mr. Stachelhausen goes so far back of him and all others that I think we may yield to him the palm. While I have not tested forced

swarms myself, I have seen the plan tested, and I have seen so much corroborating evidence that I think it is safe now to say that some bee-keepers, in some localities at least, can practice forced swarming with profit to such an extent that they can put a large working force of bees into a small brood-nest, keep them from swarming, and keep them at work. That means dollars and dollars.—Ed.]

“THE NEW “WILEY LIE” SCARE.

Early Cutting of Alfalfa or Before it is in Bloom
Not to be Feared by Bee-keepers.

BY M. A. GILL.

Mr. Root:—I can not refrain from having a little to say in the matter of cutting alfalfa before it blooms, to secure the best hay, and on the subject that alfalfa honey will soon be a scarce article on the market.

I think the above should be looked upon by the honey-producers of the West very much as they did the “Wiley lie,” of which it smacks very much.

First, it is not a fact that alfalfa makes better hay if cut before it is mature; neither is it true of any other hay or fodder, any more than it would be true that an apple would be better if picked when half-grown, or an ear of corn gathered before it is mature. Some years ago experiments were carried on at the New Mexico Agricultural Station to determine at what stage of growth alfalfa would make the greatest amount of food value. One cutting was made (as I remember reading the report) when the alfalfa was about ten inches high; another when the plant was budded; another when in full bloom (that means that the petals of the first bloom had begun to wither), and still another after it had gone to seed or nearly so. The hay of each cutting was weighed per acre. The cutting made when in full bloom weighed over 400 lbs. per acre more than any other cutting. The four different cuttings were fed to four different bunches of steers which were weighed before the feeding commenced, and every five days for one month. The results in pounds gained by the steers while being fed during this test were greatly in favor of the cutting in full bloom (besides the difference in the amount of hay per acre). The next best was from that cut while in the bud with cutting which had nearly gone to seed—very close after in results. The poorest results were from the first cutting, and three steers died during the test from this early cutting. I have had considerable experience in feeding alfalfa hay to different animals, and I always buy it where it is left standing until in full bloom. Not until the plant is in full bloom has it reached its highest state of perfection, and capable of making the greatest number of pounds of nutritious hay per acre; and this is why the first cutting is so much better in food value than any of the subsequent cuttings.

Many cut too early, in hopes of making more hay to sell by so doing; but they defeat their own purpose, as alfalfa or any other hay cut too soon dries out much more than mature grass, besides making a very washy feed. I see no tendency among hay-raisers (except in the sheep-feeding sections) to cut their alfalfa any sooner than they did years ago. Perhaps it is because they are back numbers; but I think it would be hard to convince them.

One reason why I think there will always be a "little" alfalfa honey, at least, on the market, is that humanity is much the same the world over. Every neighborhood has one or two men who are always behind with their work. Another reason is, that the thousands of acres of alfalfa are not cut in a day nor a week. Another reason, alfalfa is the great and only source which can be used upon a large scale to redeem or maintain worn lands; and wherever it is plowed up it is put to grain the first year, and it furnishes much bloom for six weeks.

I can not see why writers and editors too should talk in an encouraging way about the early cutting of alfalfa when the facts prove that it is better in pounds of hay and quality of food to cut just before the plant starts back.

Longmont, Col.

[As one of the offending editors, and perhaps the only one, it is proper for me to make an explanation. On two of my western trips the suggestion was made to me at different times that there was a tendency among alfalfa-growers to cut their hay before the plant was in bloom; and there were not a few bee-keepers who were considerably alarmed over what might take place in the future. As editor of a bee-paper it seemed to me proper and wise to sound a note of warning. There were many bee-keepers going to the West, and it seemed to me it was only fair that they know what *might* happen before they "pulled up stakes" and went west, only to find that the much-talked-of alfalfa honey was a will-o'-the-wisp.]

But I am very glad to be corrected; and from recent evidence that has come to my hands I believe you are correct. The early-cutting scare was only a scare; and it gives me no little pleasure to announce the fact.

I think it was at the Denver convention that this same question came up, and the testimony at that time was very much in line with what you say. Indeed, if I remember correctly you were one of the speakers on this topic.

When visiting Mr. H. D. Watson, at Kearney, Neb., probably the largest grower of alfalfa in the United States, he told me that we need not be alarmed about the ranchers cutting their hay before it bloomed. In the first place, for lack of time they were inclined to cut too late rather than too early; and in the second place, experiments had shown conclusively that early-cut alfalfa was not so valuable as a feed for

animals as that cut a little later when it had matured more. It will be remembered that Mr. Watson is a grower of alfalfa to the extent of about 3000 acres. He is an extensive stock-raiser, and has himself tested early-cut and late-cut alfalfa, and it is presumed he knows what he is talking about.—Ed.]

THE VIRILITY OF DRONES.

Drones from Virgin Queens and Fertile Workers as Good as any; Some Misconceptions Corrected.

BY ADRIAN GETAZ.

Friend Wright, page 737, has been looking at the wrong place for the spermatozoa. The sexual organs of the drone consist of a pair of testes, each communicating with a *vesicula seminalis* by a tube, and these two vesiculæ discharge their contents by another pair of tubes into the part of the copulating organ that Cheshire calls the "bean."

When the drone emerges from the cell the testes are already full of the "cells" represented in Fig. 1 of Mr. Wright's communication. He is correct in thinking that the spermatozoa emerge or hatch from these cells, or, rather, the cells develop into spermatozoa. At that time the testes have the appearance shown in Mr. Wright's Fig. 1.

Gradually the spermatozoa descend into the *vesicula seminalis*. There they receive a mucous secretion from two glands. That secretion holds them together. They gradually continue their course down, and finally accumulate in the "bean," where they remain until copulation or death of the drone.

The cells from which the spermatozoa develop are formed in the testes before the drone emerges from the cell—that is, during the nymph life—at least nearly all. As the spermatozoa leave the testes these assume gradually the appearances represented in Fig. 4, Fig. 3, and finally Fig. 5 of Mr. Wright's article.

The drone is not fit for business until the spermatozoa are in the bean, as that is the only place from which they can be transferred to the body of the female. At that time the testes are already nearly empty, and are completely empty a week or two later. Evidently Mr. Wright has been looking in the testes for the spermatozoa, otherwise he would not have seen the cells. Evidently, also, the differences he describes were due to the difference of age of the drones examined, those of Fig. 1 being the youngest, those of Fig. 4 about old enough to fertilize a queen, those of Fig. 3 somewhat older.

As to the proof of my assertions, I have to refer to the text-books. Cheshire, Bees and Bee-keeping, Vol. I., page 198, and following, is probably within reach of most of the readers of GLEANINGS.

Drones from virgin queens and fertile workers have been examined time and

again by expert microscopists (Cheshire, Leuckart, Siebold, etc.), and found invariably as perfect in every respect as those from fecundated queens. The only difference was in their size, and that only when grown in worker-cells.

Mr. Wright says that the color of the spermatozoa is black. That is only an appearance, an optical illusion. Organic bodies of microscopical size are invariably transparent.

He is also mistaken as to their size. Their length does not exceed $\frac{1}{100}$ of an inch. In the most powerful microscope they appear like a very fine thread, and all that we know about their thickness is that it must be less than $\frac{1}{300}$ of their length.

Mr. Wright's description as their moving in vast shoals is well chosen. Their number in a single queen has been estimated all the way from four to twelve millions, and a possibility of reaching perhaps twenty-five millions.

Knoxville, Tenn.

WHY THERE IS NECTAR FROM CLOVER IN SOME LOCALITIES AND NOT IN OTHERS.

Acid Honey from Oak-trees.

BY C. A. HATCH.

Although I have kept bees in one locality for 25 years, this summer has given me new experiences. Swarming lasted until some time in September, and the honey-flow from the beginning of basswood bloom continued until after buckwheat, although we got no surplus from the latter.

Empty hives and starvation was the rule at the opening of basswood: consequently a half or more of the yield from this source went into the brood-nest. Most people lay the failure of clover to the excess of rain. If that is the case, why did the northern part of our State have a clover crop? I explain it this way: There the drouth of last year was not so bad, and consequently clover was not killed, and there was plenty of old clover bloom. But here our clover was nearly exterminated; and although we had an abundance of bloom it was all on new growth; and, if I am correct, such plants never secrete honey.

At the end of the basswood flow the bees commenced to carry in a dark honey of peculiar acid flavor that puzzled me for some time—at least until I hunted it down (or, rather, up, for it came from black-oak trees). Seeing that the bees were roaring on oaks I at first supposed it was only a case of honey-dew; but never having known honey-dew to be found in wet weather, a closer examination revealed the source to be the acorns and not the aphides. There seemed to be a gall insect at work between the acorn and the acorn-cup, which caused a gall about the size and much the shape of a sunflower-seed to grow there and force itself into the side of the acorn. There seemed to be no opening into this gall, but

there was a small worm about the size and appearance of a bee larva four days old. The honey oozed out from between the cup and the acorn, in some instances a drop as large as a grain of wheat. After a time this abnormal growth caused the acorn to drop; and what became of the worm I never found out, nor what was its father and its mother. Where did they come from, to be so abundant this year and none other years? The honey does not much resemble honey-dew, although dark. The flavor is a delicate acid, reminding one of the candy called "lemon drops." I shipped about 800 lbs. to a city dealer, and he seemed to be quite satisfied with it. It ought to make good honey for bakers; but I am afraid if there were a demand created for it the supply would run short if a crop came only once in 25 years.

Richland Center, Wis., Oct. 9.



THE copy for Our Homes was mailed from the "cabin in the woods" in time for our last issue, but it did not reach Medina until that number had gone to our readers; therefore it appears in this issue. A. I. R. wishes me to say that he does not intend to have any issue of GLEANINGS appear without his Home talks, and that they will appear hereafter regularly unless they get lost or delayed in the mail, as has occurred once or twice before.

THE LATEST SCARE IN WESTERN BEE-KEEPING.

I WOULD call special attention to the article of M. A. Gill, in this issue, showing that the recent talk relative to cutting alfalfa before it comes in bloom, by the ranchers, is really nothing but a scare. When the statements were given to me two years ago, that the time might come when alfalfa everywhere would be cut before it was in bloom because it would make a better hay, I felt it my duty to call attention to the fact; but I am glad to believe that there is no real foundation for such fear, and that the bee-keepers of the West need have no serious apprehension. The ranchers will look to their own pocketbooks, you may be sure; and if they do so, the bee-keeping interests will be protected. As I have often said, there is a harmony in nature; and bees always work in harmony. They were put on the earth by the great Creator for a purpose, and the Creator never makes a mistake.

DEATH OF AN OLD BEE-KEEPER; THAT ARTIFICIAL-EGG STORY.

WE are pained to learn of the sudden death of Mr. S. F. Newman, of Norwalk, Ohio. No particulars have come to hand, but we understand he was killed on a railroad crossing by a moving train, on Saturday, Oct. 11.

Our friend was one of the most successful and intelligent bee-keepers of Northern Ohio. While his business was primarily real estate and insurance, he carried on bee-keeping quite extensively.

It was this same Mr. Newman who, years ago, started the story about artificial eggs, and how these eggs would hatch chickens, but that, unfortunately, the chemist had not discovered the ingredients for making *feathers*. Up to the time the story was promulgated the chickens had to be kept in a hot-house until some ingredient could be put in the artificial eggs to make clothes to cover their naked skins.

Mr. Newman, in putting forth this ingenious story, did so with the sole intention of offsetting the comb-honey lie by telling another so *ridiculous* and impossible that the dear public would discredit both; but in this he was mistaken. So credulous was the undiscerning reader that he actually believed that the skill of the chemist was such that the principle of life could be put into a concoction of chemicals that could be molded into an artificial egg that would hatch featherless chickens.

It is an actual fact that hundreds and I do not know but thousands of people believed this yarn; and when I tried to argue some of them out of it I found the task almost hopeless; but I believe the story did some good by making *some* people turn away in disgust at every suggestion of the "skill of scientists" wherever it relates to the wonderful and sensational.

AIKIN'S BOLOGNA-SAUSAGE PACKAGE FOR CANDIED HONEY.

ELSEWHERE in this department I refer to the bologna-sausage candied-honey package brought up by R. C. Aikin, of Loveland, Col. I saw these dry packages of candied honey put up in neat paper bags, just like so much brown sugar on the market. The bags were nicely printed, with directions for liquefying the honey, explaining that honey in that form was the best test of its purity, etc. I tried to engage a small quantity in that shape from Mr. Aikin; but he told me his crop had been so light the past season that he could not furnish any, and how all that he had had been disposed of to his local trade.

Bro. Aikin is to be commended for the persistency with which he has hung to the idea that extracted honey can be put up in the candied form, in a package that would cost next to nothing.

While such package would be practicable in Colorado and other very dry climates, and in localities where the workingman must have a cheap form of sweets, it possi-

bly would not do in localities subject to considerable moisture. Dry candied honey will draw moisture if there is much of it in the atmosphere, and instead of being dry it will be a sticky, mushy mess. But Bro. Aikin's bags would hold the honey, even then; but they would not stand very much rough usage, of course.

WHO SHALL BE GENERAL MANAGER FOR 1903?

OUR readers will remember that some complications arose this year over the selection of General Manager, and it has been a question on the part of some as to whether Mr. Secor or Mr. Abbott was actually in office. But the Board of Directors decided against Mr. Abbott, and Mr. Secor was requested to fill out his unexpired term. At first Mr. Abbott seemed disposed to contest his claims; but finally, "in view of the good feeling and harmony that prevailed at the convention in Denver," and, as he says, "being desirous of doing all he could to promote the interests of the Association," withdrew, stating that he was perfectly willing to leave the matter with the membership at the next general election. He forwarded to the Secretary a list of the names of persons who had sent in their dues, together with his check covering the entire amount.

In the mean time, the name of Mr. N. E. France, of Platteville, Wis., a successful bee-keeper, foul-brood inspector of his State, and one who seems to show many of the qualifications for so important an office, has been nominated by Secretary Dr. A. B. Mason. See GLEANINGS, page 867.

On an informal ballot Mr. France was almost the unanimous choice of the Board of Directors, who, after having canvassed the situation very carefully, seemed to be of the opinion that he would be one perfectly capable of filling that important office. Mr. France is a man of ability. He is a power in his State, and I think I am safe in saying he has done more to advance foul-brood legislation than any other man in the country. He knows how to appear before legislative bodies, ask for what he wants, and *get it*.

GLEANINGS wishes to take no sides in this any more than to say that it would favor some candidate who has been in no way connected with the "recent unpleasantness." Mr. France has had absolutely nothing to do with that controversy. He never thought of seeking the office, and consented to make the run only on the urgent request of some of his friends. It is a case of the office seeking the man—not the man the office. Any candidate who may subsequently come into the field, who has been in any way identified with the General-Managership muddle, would have, necessarily, friends and enemies. For the good of the Association it would seem as if the membership ought to unite on some one person concerning whom there would be no factional fight. In union there is strength. The old

fight should be forgotten; and it seems to me as if we should take the course that will be least likely to tear open the old sores of the past.

WHY THE COMB-HONEY CANARD BOBS UP EVERY NOW AND THEN.

WHILE I was in Denver I fell in with a reporter who very frankly told me that he was after "good stuff" for his paper, and he wished to know if I would be kind enough to give him some facts on which he could base a "good story." Of course, I was willing to accommodate him, and did supply him with plenty of material. But imagine my consternation when, the next morning, my "good story" was made into another so different that I did not recognize it, and, what was stranger still, I was credited with an interview that I never had with any one. A day or two afterward I saw my erring brother, and called him to account.

"Well," said he, "you know a prophet is not without honor save in his own country. You see it was this way: I was talking with several local bee-keepers who went on to tell me something about a bee's tongue, and it was good stuff; but I knew my paper would never print it unless I stuck the interview on to some one from away off. Thinking you would be a good subject I hitched it on to your name, and, as you see, it passed muster with the eagle-eyed editor." My reporter friend said, in explanation, and he was a royal good fellow, even if he does know how to serve his masters well, "It would not do to stick too closely to facts. They would be too dry reading. It must be good stuff or the editor would not use it. So we fill in, don't you see, to give it flavor and character."

It was this reporter, or perhaps some other one, who, after an interview with Dr. Mason, credited the good doctor with having fired into a bee-tree when he was trying to kill a bear. He missed the beast and hit a tree, and from the hole made by the bullet there poured out *barrels and barrels of honey!!!!*

It appears that all the reporters are after "good stuff." Some are after the sensational—the kind of material that, when placed together in "readable" form, will startle and interest. So long as the story has little foundation in fact, it is as good as or better than if it were all true word for word.

Unfortunately many of the large papers of the country are anxious to get hold of just such "stuff" as this. Can we wonder, then, that the comb-honey yarn should be so eagerly grabbed up and passed from one to the other. It is sensational; it shows the wonderful (?) skill of man. The average person is more willing to believe ill of his fellow-man than good; and when he hears how the "other fellow" is defrauding him he believes the lie, of course, especially when it appears in his newspaper.

It is an actual fact that there are many papers right in my own vicinity that I will

not read, for so much that they do print is not true, or so fearfully exaggerated that I am not able to pick out truth from fiction.

I do not mean to go into a tirade against the average paper; for, be it said, there are a great many of them of high character that will print only the truth; but I only desire to show how and why the comb-honey canard gains currency about every ten years among the yellow journals.

THE COLORADO CONVENTION; HONEY IN GLASS VS. HONEY IN THE CANDIED FORM.

AT one of the sessions we listened to quite a spirited discussion between Mr. R. C. Aikin, of Loveland, Colo., and Mr. Geo. W. York, editor of the *Amer. Bee Journal*, on the subject of putting up extracted honey for the retail trade. It really resolved itself into a debate on the question, "Resolved, that extracted honey should be put up in the candied form for the retail trade, and that consumers should be educated to purity of honey in that form."

Mr. Aikin took the affirmative, and Mr. York the negative. In beginning his talk Mr. Aikin admitted that for large cities containing many people who could afford to pay fancy prices for something pretty in glass, honey in the liquid form in bottles might be all right; but in his locality the average consumer could not afford to pay fifteen cents for a bottle and get only five cents' worth of honey. He had been working on the problem of putting up candied honey in bottles for some time. His idea was to make the honey and the package so cheap that the laboring man could afford to buy such a pure and wholesome sweet in preference to sugar, molasses, and others of like character. He had put up alfalfa honey, which granulates very rapidly, in lard-pails. When candied, it was ready for market; and his trade had learned to buy such honey in five and ten pound lots. At the price he offered it, it would compete with other sweets. He exhibited before the convention a paper bag which had been, so to speak, treated with oil or paraffine in such a way that candied honey could be put in it. It was neatly printed, and when filled with dry candied honey made a very pretty appearance. For such a package the consumer paid for practically nothing but the honey, for the bag could be furnished at an insignificant cost. His customers had learned to liquefy this product so they could have either the candied or the clear extracted article, just as they preferred. He objected to the glass on account of its expense, and because it made honey a delicacy. He also objected to the machinery necessary to carrying on the bottling business—the messing of the wife's stove, etc. Then, too, honey in glass had to be kept liquid in order to sell. Paper bags and lard-pails were the cheapest packages that one could get for retailing honey; and he thought we might just as well educate the consumer first as last that honey in the can-

died form was just as pure as that in the liquid, and in his locality he succeeded in doing it.

At the outset of his talk Mr. Aikin referred to his opponents in the discussion as Irishmen; but Mr. York, who responded, retorted that there was not a drop of Irish blood or blarney in his crowd unless it was in Dr. Mason, and *he* did not have more than two drops. It was evident that his good friend was just *Aikin* to see a big fire and lots of smoke. If he would wait till he left the world he might see and feel more hotness than he wanted—perhaps enough to liquefy his granulated honey.

Mr. York did not believe in feeding all creation with honey, and almost making people a present of it besides. What cost practically nothing would be valued at just about what it cost. Honey, he thought, was different from most other table articles. It was a necessary delicacy not to be eaten like potatoes, soup, and corn-meal mush. A little at a meal, like butter, was all a reasonable person could ask unless he ate with a *shovel*. Then, of course, granulated honey would have the advantage. When he put up extracted honey he did not want to have to spend valuable time in telling his customers that it was not sugar, lard, nor even "grained goose grease." Every one knew that all honey is in liquid form when taken from the hive; then why not pass it to the crowd in its original sparkling form? Honey was a tempting thing when it glistened through clear flint glass; and what was 18 or 20 cents for a pound of such concentrated sweetness? There were a good many people who would blow in ten cents for a cigar, and then blow it all out in smoke. How much more pleasure and strength could be derived from the price of two such cigars invested in a pound of honey?

In the majority of retail stores, glass jars holding from 12 ounces to 1 lb. each were to be preferred, retailing at 15 to 20 cents. In the country trade, selling from house to house, the pint and quart Mason jars were the best.

In closing, Mr. York stated that Mr. Aikin's method of retailing honey might do for his locality and in his hands; "but," said he, "don't any of you ever go to a large city and try to put his method into practice. If you do, you will regret it;" and as a parting shot he invited his opponent to make a fire so hot that even his granulated honey would all be liquefied, so that even spooney people could get it down without a *big shovel* and elbow grease.

Quite a long discussion followed, some taking one side and some the other. The gist of it seemed to be that one must be governed by his locality. If one lived in the city, then let him cater to the city trade. If one lived in the country, made up largely of working people of limited means, then give them a package that would be cheap or useful after the honey was out of it.

Mr. Holley, of Fort Collins, used oyster-

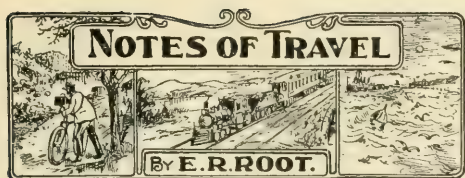
pails, and favored the paper bags recommended by Mr. Aikin.

Mr. Abbott, of St. Joseph, Mo., in referring to Mr. Aikin's statement that an expensive apparatus would be needed to bottle honey, said that an ordinary cook-stove, and the essentials found around any house, would be sufficient to put one in good trim for bottling honey. He did not approve of Aikin's "bologna-sausage package." This designation raised quite a laugh. There was such a thing as having things too cheap, and he pictured out the man who would put a package of bologna honey in his pocket, and how that person might get up against a coil of steam-pipe, with the result that the honey would liquefy and run all through his clothes.

Mr. Large had tried the bologna-sausage package, and he had never yet had any complaint that it melted 'down' in one's pocket or that it broke. In general he substantiated Bro. Aikin's statements.

The cross-fire got so warm that finally Mr. Aikin was drawn in again. He stated that he did not claim in his paper that candied honey could be retailed in all localities. He was only trying to call attention to his method of putting up candied honey suitable for the pocket of the poor man. Referring to Mr. Abbott, he stated it must be pretty hot in St. Joseph for candied honey to melt down in one's pocket. He was sorry for Mr. Abbott, and invited him to come and live in a cooler and better country. As to the bologna-sausage package leaking, he wished to remind the Irishmen that honey in bottles had a disagreeable way of pushing out through the corks, running over the sides, and soiling the counters. Then he pictured how a customer of York's might put a bottle of his fancy honey in his coat-tail pocket; how that customer might turn on his heel suddenly, swing that coat-tail against a solid object, smash the bottle, and then—oh my!

He wished to emphasize the fact that he was catering to the poor people—those who would buy a little sugar, then put water in it to make a syrup, in preference to buying honey in glass that would be out of their reach. He desired to remind the gentlemen on the other side that the world is full of just such people who are trying to make their money go as far as possible. They would figure out that granulated sugar and water were far cheaper than York's honey; but a bag of his candied honey—and candied honey was always good and pure—would compete with granulated sugar. Lots of his customers would eat it in the candied form; yes, they would "shovel" it in, and he had no objections to their doing it, so long as they bought more, and that was what he wanted. The workingman will have sweets; and if we bee-keepers could put honey in such a form that it would compete with sugar and water, or some of those nasty stuffs they called molasses, we could have a trade that would be worth catering to.



IDAHO AS A BEE COUNTRY; ITS CLIMATE AND ITS SOIL.

Leaving Portland, Oregon, I took the train homeward. My next stop was at Nampa, Idaho. I had previously received a letter from Mr. F. G. Cottingham, from that place, desiring me to stop off on my return; but I did not recognize his name as one that stood for an old schoolmate of years gone by until I met him face to face.

Mr. Cottingham was a dealer in supplies, and has kept bees, although his regular business is that of a contractor and builder. He particularly desired that I should see that country, with its possibilities in the bee-keeping line; and, accordingly, the next day he very kindly drove me over something like forty miles of as pretty farming country (barring some desert tracts) as I ever saw. While it had to be irrigated, like a great portion of the West, yet I could readily see that the soil was wonderfully productive; and the climate, too, was like that of my own State, without its humidity. Here we could not only find natural farm crops such as are grown in the East, but alfalfa and other plants that are peculiar to the West.

This particular portion of Southern Idaho, what little I saw of it, seemed to be one of the finest bee countries in all the United States; and the strange part of it was that, at the time of my visit, there were apparently very few bee-keepers to take care of the alfalfa-fields. But I understand that, since I have mentioned the fact in our journal, some bee-keepers have gone westward and have located in that vicinity. The resident bee-keepers had no objections to others coming into their locality *provided* they did not squat their bees in places already occupied; but when they did this, and one man brought foul brood from the East—well, you can just imagine they were not a little displeased, and rightly so.

The whole area of the United States where bees can be kept is so fully occupied now, that, when there is an unoccupied field where they can be kept, there is apt to be an exodus to it as soon as the fact is known. But strange it is that bee-keepers, after all that has been said, should rush into fields already taken up; for all through Idaho there is unoccupied territory, and room for all.

While the climate is very dry, and the dust almost suffocating, yet to me there were many attractions. Wild game? There was plenty of it. One who can live in the North-Central States of the East would

have no difficulty in adapting himself to the climate of Idaho.

But, to return.

Mr. Cottingham and I stopped to visit various bee-keepers on the way to Boise, the chief city of the State, and its capital. At Meridian, about midway, we met Mr. E. F. Atwater, a bee-keeper only twenty years of age—a young man full of enthusiasm, who, by reason of ill health, had left the cold Dakotas, and gone further northwest until he had struck the beautiful climate of Idaho. At the time I met him he was finding both health and strength. He had 140 colonies, and considered his locality a paradise for bees. Although so young, he writes for a number of agricultural papers, and his communications have appeared at various times in these columns. I had with me that day only a small pocket camera, and



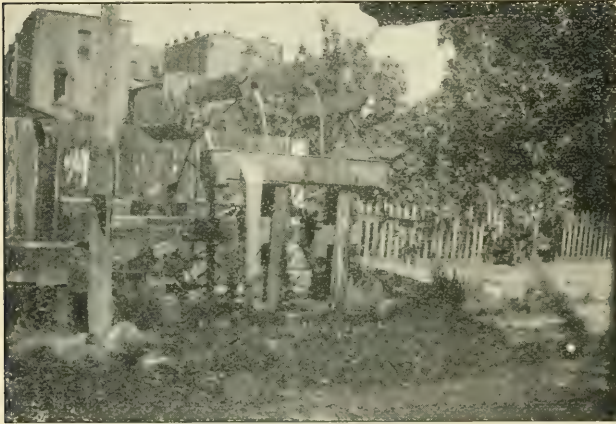
E. F. ATWATER, JUST FROM HIS BEE-YARD.

with this I took a shot of him which I present at this time. His hives are put under a gable roof of shade-boards, and was running for both queens and honey. At the time of my visit he was experimenting with the Swarthmore method of fertilizing queens, which method he was inclined to regard as a success.

A UNIQUE SCHEME OF MAKING WATER RUN UP HILL FOR IRRIGATING PURPOSES.

Leaving Mr. Atwater, Mr. Cottingham and I drove on to Boise. There was one thing here that interested me greatly. It was an irrigating-device, many of which we see in the irrigating region, that will lift a small quantity of water up six to ten

feet into a trough or tank. When once elevated, the water will seek its level to a higher elevation than the regular irrigating-ditch, and it is thus made available for land that can not be irrigated by the ordinary method of laterals. Well, just in the rear of the business blocks was one of these irrigating-wheels—what they call them I do not know. It might be considered an old-fashioned undershot water-wheel, consisting of a circular framework mounted on a shaft. Around this framework are troughs or buckets. The current of the stream or irrigating-ditch is just sufficient and no more to cause this wheel to revolve at a slow rate of speed. As the current catches the troughs it causes the wheel to revolve, bringing up buckets of water, which, when they reach a certain elevation, overflow into the above-mentioned trough. The little instantaneous kodak picture



A SIMPLE PLAN FOR ELEVATING A SMALL AMOUNT OF WATER FOR IRRIGATING.

shown herewith will illustrate the principle. Just opposite this machine there was a lawn on high ground; and the trough, being high enough, the water was forced through a pipe across the road on to the elevation on the other side.

All through the irrigating regions I found these wheels, and to me they were always objects of interest. One such wheel will take care of a garden-patch of several acres. The amount of water handled, and the height to which it is to be elevated, depend entirely on the swiftness of the current in the ditch. In this case the current was so slow as to be almost imperceptible; and the wheel itself was just barely keeping in motion; and yet here it was going on day after day, "working for nothing and boarding itself." There was no engineer, no coal-pile, no fire, nothing but the machine itself, which, when started, never ceases so long as the water in the ditch keeps up its flow.

The question may be asked why wind-

mills are not used for elevating water. They are to some extent; but an ordinary windmill will take care of but a very small amount of land, and only at irregular intervals; and where the wind is very high, as it is at times, the cost of maintaining the mill is much greater than maintaining a rudely constructed water-wheel like the one shown in the illustration.

THE FUTURE OF IDAHO.

As I took the train from Nampa on my return I came away fully convinced that Idaho, which seems so far away to a tenderfoot of the East, is bound to be one of the great productive States of the future. If I desired a climate like that of Northern Ohio, Illinois, New York, or Pennsylvania, without their overplus of moisture, and if I were seeking more room—i. e., more land, and desired to go West, I do not know of any place where I would rather go than

Idaho. But do not misunderstand me. There are thousands and thousands of acres of desert—the home of the sage brush and the ever present jack-rabbit—land which, to the superficial observer, appears to be utterly worthless; and it is worthless until by some means water, the one thing lacking, is brought on to it. Land remote from the mountains or far from a natural stream will probably be always worthless. But some of this great desert country that can be reached by water is bound to be in time some of the richest and most productive in the world. It remains for old father Time and the genius of man to make it blossom into fruitfulness.

UTAH AS A BEE COUNTRY; OGDEN CANYON A GREAT ELECTRIC-POWER PLANT.

While we are occupied with these reflections we are on the way to Utah. Now, almost before we know it we reach Ogden, one of the great railroad centers of the West. We step off the train and see indeed a modern city with all its equipment and paraphernalia. The streets are wide and paved, and every thing in the city betokens stir and business. We make our way to the Valley Bee Farm Co., and find it represented by Mr. C. W. Frost, who is not only the local supply-dealer but a beekeeper who owns and operates two or three bee-yards. Mr. Frost had been associated with Mr. Smalley, and subsequently I had the pleasure of a wonderfully bracing drive with them up the Ogden Canyon.

It seemed all along my trip that each time I stopped I was presented with the most beautiful scenery in the world; and each time I felt I had never seen any thing like it before. The Rockies of Colorado,

the Sierra Nevadas of California, the mountain peaks, the beautiful scenery along the Columbia River, all have their special attractions and beauties; but one of the

eral thousand horse power. These in turn operate immense dynamos that furnish power and light for Ogden and even Salt Lake City, miles away. After the water has gone through the powerful turbines, and lost its great pressure, it is used for irrigating the land in the valley.

This is a remarkable instance of how water may serve the double purpose of driving street-cars and making light out of darkness, and at the same time making land once a desert a perfect garden of verdure. I found in the West that a double use of the water is made at several places; but this is the most perfect example I had ever seen.

We bid adieu to Mr. Frost and take the train for an hour's ride to Salt Lake City, better known as the home of the Mormons and the place where the great Mormon temple is built. Here we meet Mr. J. H. Back.

Speaking about the Mormons, whatever we may say about their religious views so far as orthodoxy is concerned, we must ad-



THE DRIVE UP OGDEN CANYON, UTAH.

most picturesque spots in the United States is a drive of five or ten miles up the Ogden Canyon. I shall have neither time nor space to describe the beauties of this kaleidoscopic scenery. At every turn of the road new views presented themselves. I can give only one or two pictures, which are only a fair sample of what the country is like. These were taken by Mr. Calvert; and as they are better than those I took I produce them.

Aside from the beautiful macadamized road, and the scenery that it makes possible to take in with ease and comfort, man has gone further and put in an immense flume which carries water from a lake thousands of feet up in the mountains. This flume carries the water down the canyon and finally delivers it to an immense power-house in the valley. Here the water is utilized for driving turbines of sev-



A CHARACTERISTIC SCENE UP THE OGDEN CANYON.

mit they are a thrifty and energetic people. They believe this region is in a great part like Palestine. In place of the Dead Sea of the East they have Salt Lake. They have a River Jordan; and there are many points of similarity between the two lands that are indeed quite striking.

But how about the country for keeping bees? At the time of my visit the bees had not done well. But I know this: That of all the States in the Union, Utah is one of the best. Immense amounts of beautiful sweet-clover and alfalfa honey are produced, and bee-keeping is conducted on an extensive scale.

A BATH IN SALT LAKE; HOW IT FEELS TO FLOAT ON THE SURFACE OF ITS WATER.

But I shall not soon forget the pleasure and novelty of a good bath in Salt Lake with a son of Mr. Back. I had heard that it was impossible to sink in that water, and it is true. Here I had the pleasure of sitting on its surface, bobbing up and down like a cork. Sink? It was impossible; and as to swimming or wading, one could make only a very slight headway, so heavy and dense is the water from its large percentage of salt. But one must be very careful and not lose his balance and plunge his head under the water, as he would be apt to strangle very quickly, even if he didn't sink, for the brine is remarkably strong. You'd better believe I held my balance for once in my life. As I sat on the surface of that water, with knees and armpits in the air, I felt as if I were being rocked and tossed really and truly on the cradle of the deep; but I could not repress a feeling that I should soon be sinking, and every now and then I found myself paddling to keep above. The water was cold — a little too much so for comfort, and I was glad to get out, in spite of the fact that I had enjoyed the rocking-chair. Once in the bathing-house I noticed, as the water dried on me, that the briny crystals stood out plain, and it is, therefore, necessary for one, before dressing, to stand under a spray of fresh water.

RAMBLE 213.

The Royal Palm; the Rambler Ceases to Ramble for the time being.

BY RAMBLER.

In many of the illustrations in these Rambles the reader has noted that the prevailing tree has been the royal palm. Wherever we journey on this western end of the island, this noble tree is in evidence, and always to be admired. In natural groves, in long avenues, or in isolation, it has the same characteristics. The palm would be a nice tree in any country, merely as an ornament to the landscape; but aside from this it is a very useful tree here in Cuba. In fact, I can hardly imagine how the natives could live without it.

The leading use of the palm is for the construction of dwellings. Many of these dwellings have been shown in these Rambles, and these lines are written under a palm roof. As I look up to the under side of it, it looks like an immense basket protecting me from the elements. The sides of the house are made from the outside or rind of the palm split into boards. The center of the palm log is of a pithy nature, and of little use. As I have shown you in the past, the body of the palm is used by the native bee-keeper in many ways. Cut out the pith and it makes a very good bee-hive, and thousands of them are in use to-day.

The palm, I am told, blossoms every month in the year. The big green pods that form just under the fronded leaves, at maturity burst with a loud report, and the blossom, composed of many racemes in a bunch, and nearly white, is very ornamental, but a little too much elevated from the



ROYAL PALM IN BLOOM.

ground to receive much admiration. The bees swarm over it and gather honey or pollen. I find bee-keepers disagree about what the bees gather. Some say only pollen; others, pollen and honey. I have not been able yet to verify either assertion, on account of the elevation. When the Rambler gets skill enough to climb one of these trees as the natives do, the problem will be solved. If you ask a native, and he thinks you are more interested in the honey than in pollen, his reply will be, "Si, señor; mucho, *mucho* miel."

The blossom soon passes, and the fruit-

age is clusters of berries, dark brown, and about half an inch in diameter, and half a bushel or thereabout to a blossom. These berries are gathered by the natives, and are excellent for fattening hogs.



SPANISH JUGS.

When I visited Fred Somerford a few months ago his men were cutting the berries and storing them for this purpose; and I learned recently that his pork venture has resulted in as much or more profit than his bees. At present pork production is a profitable business on this island.

For about four to six feet below those long palm-leaves there is a portion of the tree a bright green. Those long leaves mature and drop to the ground every month. As one leaf falls away it peels off a portion of that green envelope. This is a very tough paper-like substance, and is used in many ways by the natives. Many houses are sided up with it instead of the palm plank. It is used for bales on the tons of tobacco shipped from Cuba. A native can deftly fold a piece of this material into a convenient dish that will hold water or honey; put on a handle, and it makes a good basket; cut a hole in the center large enough to put your head through, and it makes a very good waterproof protection on a rainy day.

There are several varieties of palms, and all are useful. The date and the coconut palm furnish that delicious food which we are all pleased to get.

The photos presented herewith show the palm in bloom. There are usually three or four of these large clusters on one tree at once, and the fruitage is abundant.

Another photo shows an apiary with a palm honey-house. The house in question

is not bee-tight, but could be easily made so by lining with cheap sacking or muslin. Almost exactly in the center of this photo a triangular spot appears. That is a fine swarm of bees. When the Rambler called, there was no owner present, and had not been for several days.

Without smoker or veil the swarm was hived; but I learned from the owner a few days after that a good hive and frames were not according to the notions of the bees, and they absconded. As I have before remarked, hundreds of swarms take to the rocks and the woods in this island, and it cannot be helped under present management.

Our other photo represents a row of garaphones. These are really five-gallon wine-bottles covered with willow-work, and they came from Spain. They are used in Cuba quite extensively by the native bee-keeper for storing and marketing their honey. With their strong handles they are quite handy to manage, either in the carreton or packed on mules.

The brush-like article in front of the garaphones, and another erect upon the box, are quite generally used in the rural districts for brooms. These are the product of the royal palm, and are the matured blossom, or that portion left after the seeds have been beaten off. The other articles on the box are baskets made from the bark of the royal palm.

And now, my dear reader, for the past six months your humble servant has been so very busy building up an apiary that he has scarcely left it, and there seems to be no more material on hand for Rambles. I have had many experiences such as I have never had before, and much to learn about bees, bee-keeping, and people in this island. I am now upon the threshold of the honey season, and it seems that the work is be-



PALM HOUSE.

coming more and more strenuous.

Should I get the time, I promise to continue a few articles about building up an apiary, with all of the advantages and disadvantages, for there are disadvantages in Cuba as well as elsewhere.

STINGLESS AND OTHER BEES.

Some Interesting Facts not hitherto Given; Stings of our Bees vs. the "Bites" of the South-American Stingless Bees; Can these Bees be Domesticated?

BY W. K. MORRISON.

Now and then something appears in GLEANINGS bearing on stingless bees, usually referring to a species common to Cuba, Jamaica, Hayti, Porto Rico, the Leeward and Windward Islands, Mexico, Central America, and the Caribbean region generally. Possibly a clever biologist would split up this kind into several species; but the practical bee-keeper will probably always recognize the species as one only. It is usually considered as not worth cultivating, though the generations yet to come may consider it useful, more particularly as its honey is valuable for its medicinal properties. It is also valuable as showing where other species of stingless bees may be readily introduced.

The moment we leave the Caribbean region and approach the continental one of South America, a striking change occurs in the bees; for we no longer have to deal with one species but many, some larger and more prolific than *Apis mellifica* we know so well.

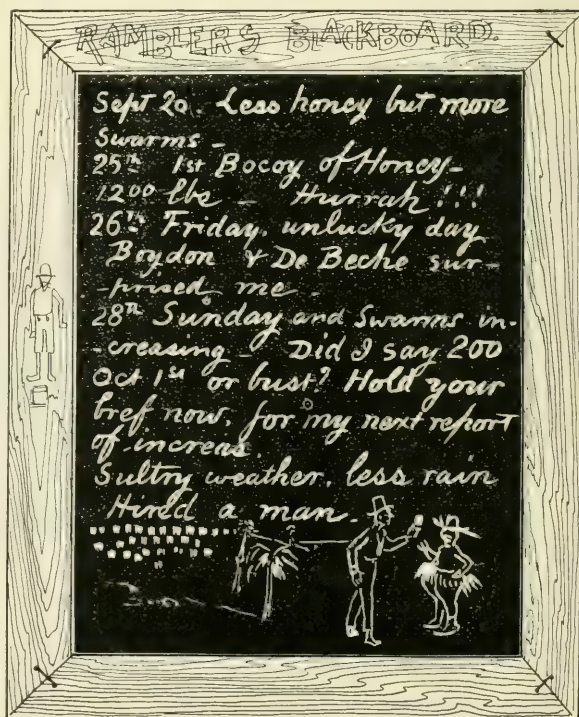
Most of the famous writers on South America mention bees either in a wild or a domestic state. Capt. Hall has left us a graphic account of an apiary of stingless Peruvian bees, while Humboldt and other writers mention them casually. Bates, while on the Amazon, gathered specimens of 50 or 60 species, showing what a wide field exists for further observations. Other writers and explorers mention these bees, particularly Azara, Geoffrey St. Hilaire, Wallace, Stedman, and Waterton. Azara describes very clearly the honey-gathering wasp, for which he was ridiculed by the easy-chair travelers in Paris and London. Naturalists have generally assumed this wasp was confined to South Brazil and the River Platte countries; but so far as my own experience goes it may be found all over the continent, probably differentiating into several species. I can not term it a wasp. Stedman, in his book, "Travels in Surinam," mentions a kind of bee building its nest under the eaves of houses, in verandas, and in sheds. I used to think the bee referred to was simply *Apis mellifica* run wild; but the guess was very wide of the truth. It is a jet-black bee, building a nest as large as

Apis mellifica, but, like all South-American bees, building a covering around its nest—a very necessary protection—and stingless bees do this even when they occupy a hollow tree or decaying log. Some use wax, others cements, others a paper substance. Sometimes several colonies occupy the same hollow, and the nests will almost touch; but the envelope of wax prevents a contretemps.

There is a great difference in the size of nests. Some are the size of the kind in Cuba; some much smaller; others would require a flour-barrel to accommodate their abode. Some of these nests must be the work of years, for nearly all the species stick most pertinaciously to their home. No matter if you repeatedly pull the nest to pieces they at once proceed to reconstruct it. This is a valuable instinct, as it means they can be easily domesticated.

The stingless feature is not so valuable as it first appears. All these insects bite with energy and vigor—so much so the average individual dislikes to interfere with them. The rapidity of their attack, their eagerness, and the multitudinous numbers of them, all combine to frighten a great many persons.

Even when a veil is used they attack the hands, and bite with fury. Of course, they leave no bad effects, and the sensation of their bites soon passes away. Smoke subdues them to some extent. They have a queen or queens; but whether they have drones or not I can not say. If they have,



they can not differ greatly in size from the workers. I suspect they are very much akin to ants in their internal economy.

Usually the combs are horizontal, while the bladders containing the honey and pollen are distributed around these—not in confusion but after a regular plan, hence it will not be difficult to construct a hive to suit their habits and inclinations.

The honey varies very much in quality. In some species it is positively sickening to the taste and smell. Usually, however, it is highly aromatic, very clear and thin, and usually acid or sub-acid, and seems to contain citrate, probably due to the decomposition of the sugar. If put on ice it crystallizes into beautiful white crystals like refined sugar, indicating that it contains sucrose, whereas the sweetening in honey is due to glucose. The wax is dark, very plastic, and usually made in liberal quantities. In the South-American countries it is used for various purposes, but does not seem suitable for candles, as the priests assiduously cultivate *Apis mellifica* for the purpose of getting beeswax.

As a matter of fact, it is wrong to speak of the wax as wax or the honey as honey. Both are radically different from the honey and wax of commerce, and I have thought that we had better not term it honey but *mellipona*, and so avoid confusion of terms. Possibly cerise would suit the wax product. In any case, different names are desirable.

As to the prospects of domestication, no doubt this can be effected; but what species to hold for the purpose, and where to take it, are questions not easy of settlement. I have my own notions of what species would suit, but there may be better ones, for South America is a large continent, a great part of it unexplored and almost unexplorable. I have mentioned that one species is domesticated in Colombia, Ecuador, and Peru. This is done by cutting out the logs with the nest, and carrying it to the home of the apiarist. To arrive at any thing definite and trustworthy, more study of these insects in their native haunts is required; for what I have been able to glean is very little, yet at a good deal of personal discomfort, for traveling in South America is no joke, no matter how well equipped one may be, and to live for years in the native haunts of our subject is no light affair. One would think the natives and Creoles would be able to give some fair knowledge of these bees, but they seldom can. Usually some woodsman, a native Carib, supplies the villages with the honey required, if any, and his stock of knowledge is usually limited; moreover, these people do not like to answer questions.

To get any extended knowledge, the student of stingless apiculture will have to live at a considerable distance from the seaboard. Bogota would be a good point, probably. If the United States were to do as the Germans do, and appoint scientists to represent them in the South American

towns, it would simplify things very much. For example, the Germans have Prof. Ernst in Caracas, who is a very famous savant; Prof. Lehmann, in Colombia, who is a well-known botanist; Baron Eggers, in Ecuador, another famous botanist; Fritz Muller, the Darwinian, in Brazil; Kurtz, in Argentina, and so on. The people take it as a great compliment to have distinguished men sent to them. They don't pursue science, but they admire it. Some severely practical men may suggest, "Why bother with stingless bees when the others answer very well?" In the first place, there can be no standing still. We must progress or go backward. These bees work on flowers but little noticed by the others; they work in wet weather better, and their productions are quite different. To know them they must be well studied in their native home, not by rushing at them and carrying them off and submitting them to conditions they are entirely unsuited to. It may be supposed that they are suited only to the heat of the tropics; but there are large areas of temperate lands in South America, doubtless, containing species suited to the climate.

The only question to be considered in this connection is, "Shall we tackle this problem now or leave it to a future generation?"

[This is the most interesting and valuable article we have ever had on stingless bees. There is a possibility that the right species might be domesticated. If any of our subscribers in South America are in position to give any further facts we should be glad to hear from them.—ED.]

THE WORKING POWERS OF BEES.

Do They Not Depend Upon Their Brains? Not Long Tongues but Knowing How to Get the Nectar.

BY L. O. WESTCOTT.

Since our experimenting apiarists and scientific men agree it is neither tongue-reach nor tongue-length that enables the red-clover-honey gatherers to obtain the lucid nectar from the deep tubes beneath the corolla of the red clover, would it not be well for them to turn their search-lights in other directions, and, if possible, discover the true secret, even if it does not exactly tally with old ideas?

For many years we have been extolling the wisdom of the honey-bee. In the ABC of Bee Culture Mr. Cowan is quoted as showing the brain of the honey-bee to be superior to all other insects. One can hardly find a book written on the apiary which has not something to say of the wonderful knowledge possessed by the honey-bee. Have we not good evidence at hand to prove that they are not all endowed with the same amount of wisdom and skill any more than the human family is? For instance, we see a vast difference in their skill and workmanship in comb-building, in their

manner of constructing queen, drone, and even worker cells. I could relate many instances showing the cunning of the honey-bee if I had the time and space. These things I have observed in my own apiary, and I doubt not that all old bee-keepers can say the same. This being true, why should we not credit the honey-bee with at least a small amount of progressive knowledge which is being handed down little by little from generation to generation, and not say it is simply instinct, and that the first honey-bee on earth (which perhaps had a nest in a hollow tree in the garden of Eden) knew as much as our best strains of the present day? I think it would be but fair to give them the advantage of a doubt, and investigate in other directions. I hope that those who have time and opportunity will examine and ascertain, if possible, if these red-clover bees may not have some way of pressing the deep delicate flower-tubes close around their tongues, making it air-tight below, then raising the nectar to their honey-sacs by suction, or, by pressing the lower part of the soft pliable tube, force the honey up to the surface so it will be in reach of the shortest tongues.

In the Bee-keeper's Guide, Prof. Cook, after describing the physiology of bees' tongues, says, "The bee then can take nectar in three different ways: First, rapidly, when sipping from flowers containing much nectar by the large channels formed by approximating its maxillæ and labial palpi; secondly, slowly from deep tubular flowers, when it sips through the central rod; and, thirdly, it may lap from a smeared surface because of the slitted ligula." So does it not seem reasonable, with their extra brain power and their many wonderful appendages, they should be able to contrive some way to obtain the coveted sweet from the red-clover blossoms, especially those which have been bred for many generations in a country where red clover is extensively grown? I do not doubt that there are many red-clover bees in the East, where they have had such excellent opportunities to become acquainted with the mode of obtaining it; but in many parts of the United States red clover does not succeed well, and in such localities I should hardly expect red-clover bees.

Swanton, Neb.

[I should question very much whether the bees with short tongues, even if they could make an air-tight connection with the flower-tube, could suck all the honey out. From a mechanical point of view the feat would be impossible unless there could be a vent at the bottom by which the 15 pounds of air pressure outside of the tube could be exerted to force the nectar up to and within reach of the bees' tongues. Perhaps the matter may be better explained if I illustrate it in this way: Suppose we have a bottle half full of water. Through the cork we insert a little pump, the suction of which is above the surface of the water. Now, if we work

that pump, the water, of course, will not come up. But suppose we insert the suction of the pump into the water, there will very soon be a partial vacuum. When the air pressure in the bottle is not sufficient to force the water up the suction pump, it will fail to draw water.

Of course, it is true that bees have a very large brain compared with that of other insects; and we know, too, from experience, that they exhibit wonderful sagacity at times; but I do not know any way by which bees could use their brains in getting honey from red clover unless those same bees in some way puncture or tear away the base of the flower so that they can reach the nectar. Experiments and a great amount of testimony so far goes to show that bees do not cut or bite open either the skins of fruit or the delicate tissue composing the base of the flower-tubes.—Ed.]



A BEE-YARD AMONG THE HILLS IN INDIANA.

I live in town, and have my bees near the edge of the corporation, between the forks of the White Water River. I started with 11 colonies, which wintered well in a cellar last year; in the spring I bought 10 three-frame nuclei, each with a queen, in the South, shipped to me by express. I also got 7 stands of common bees of a man at a



THE WHITE WATER VALLEY APIARY.

sale. They were in old shaky stands, and I transferred them to Root's Dovetailed hives. With the 10 three-frame nuclei and the 11 stands I had, I have increased my apiary to 36 colonies. Each colony has a thoroughbred golden Italian queen, and two of them have a leather-colored queen, which

I got direct from Italy. All my colonies are strong, and have plenty of brood and stores; and from 25 of these I have taken 1362 lbs. of honey this season, ranging from 15 to 131 lbs. of honey per stand; 16 colonies had not less than 40 lbs. to the stand; 3 went over 100 lbs. each.

This picture was taken the first of June, and shows only 27 colonies, to which I have added 9 more. The platforms which the bees are on are made of pine, with a 2-inch fall, and $\frac{3}{8}$ -inch iron legs resting on cement blocks. My bees are in a chicken-yard at the rear end of the lot. The hives are shaded by a pear-tree, a peach-tree, and a big walnut, which does not show in the picture.

H. W. CASTLE.

Brookville, Ind., Sept. 11.

CLOSED-END FRAMES VS. OPEN-END; THE ADVANTAGE OF THE FORMER FOR GENERAL HANDLING.

On page 803 Mr. Doolittle says, "The reason why only three combs [he means frames] are to be left under any circumstances is, that a person can not grasp more than these with the hands at one time." Bro. D. is giving instructions for doubling up weak colonies, and from the description of his methods one would be led to believe that he uses the loose hanging frames. I know that four frames *can* be handled at one time in all such operations as he is here describing. Four frames can be handled at one time, *provided* one has the right kind of frames. Not long ago I sent you a photograph showing the position of the hands in handling four *closed-end* frames at one time. It is about as easy to handle four at a time as one. Mr. Danzenbaker was at my place in the summer of 1898, and saw me handling the closed-end frames, four at a time.

The advantages that closed-end frames possess over the loose hanging frames are so great that one will use them but a short time before he would use no others. The loose or open end frames would no longer be "in it." With the closed ends there is no time lost in spacing the frames. If a hive is to be moved for miles, no time is lost in preparing the frames. They need not be touched. They make the hive, when properly made, completely double-walled. They can be reversed at will, and no combs are ever built between the ends of frames and inside of the hive ends. They save time in handling, etc.

In doubling up, if Mr. Doolittle and all others will spread a single thickness of newspaper over the hive-body containing the queen, and then set the queenless hive on the paper, the work of doubling up is accomplished with very little time and labor. Try the plan and see for yourself.

Tophet, W. Va.

T. K. MASSIE.

[All that you say in favor of closed-end frames is equally true of the half-closed end or Hoffman. We very frequently take up four such frames at a time in forming

nuclei. In fact, it is as easy to pick up four as three. If the propolis connection be not broken between them they can be handled as one block, or, as I have often said, the brood-nest can be handled in halves or *en masse*. No one could ever induce me to go back to unspaced or old-style loose hanging L. frames; and I believe if our friend Doolittle were to be compelled to use closed-end or half-closed-end frames for two years, and use them side by side with loose hanging frames, he would soon feel that he could not afford the style of frame originally given us by father Langstroth.—ED.]

SEALED COVERS CONDEMNED; DO BEES REQUIRE MORE FOOD IN A SEVERE WINTER THAN IN A MILD ONE?

On p. 198, after advising absorbents over a colony of bees in winter you say, "Better still, a sealed cover." Now, do not think me too radical when I say that here in Colorado (and we have 20 below zero) that, if I could have protection from the storms (when there are any) and robber bees, I should prefer nothing over my bees but the canopy of heaven to an absolutely sealed cover during December, January, and February. I removed a colony of bees last April from the top of an unused chimney, the opening of which was 8×16 inches. We had 25 degrees below zero, and during the winter, all told, perhaps 25 inches of snow fell on the bees; and yet when I transferred them I believe they had more bees and brood than any two colonies in Boulder Co. which had been wintered under sealed covers and without absorbents.

Again, do not most of our teachers say that it takes more honey to winter bees in a mild climate than in a cold one? and I often hear it remarked here in Colorado, during a mild winter, that the bees will be short of stores on account of it. But my bees (perhaps to be contrary) don't use up as much of their stores in an open mild winter as they do in a long severe cold one; neither does my cow nor do my horses consume as much food during the mild winter as they do in a cold one. I myself eat more during the cold January than the hot July. The argument is brought forward that the activity makes them consume more. While this is true in a measure, the demand for food is not nearly so great as the demand for more heat during long-continued cold, and heat is produced only by more food.

M. A. GILL.

Longmont, Col.

[The advice that I gave on p. 198 had reference more particularly to the climate of the Northern and East-Central States, for you will note that it is in answer to a resident of Ohio. There is so much moisture in the atmosphere with us that absorbents do not dry out as they would in Colorado, where there is very little moisture; hence the advice to use sealed covers. Conditions are so different in Colorado that a plan of wintering that is applicable to the

East would be unsatisfactory in your State; but, generally speaking, I would question whether the "canopy of heaven," even if there were no robbers or storms, would not be too much of a good thing.

The statement that mild climates cause a larger consumption of stores in winter is one that also hinges on locality. While it is true you have zero weather, and sometimes 20 below, your climate is very dry; and, what is more, if I am correctly informed, it may be zero cold at night and comparatively warm the next day. But bees certainly do consume more stores in winter in the extreme Southern States, where they can fly almost every day, than they will in the North; and yet it is a fact that in our locality outdoor-wintered bees, during extremely cold weather, consume more honey than when the temperature is milder. In the same way, indoor bees, subject to a temperature of about 50 degrees, consume about half the stores that the outdoor bees do in a temperature ranging from 70 above down to 20 below zero. The statement is one that needs qualifying for different localities and different conditions.—Ed.]

QUEENS WRONG END TO IN THE CELL.

I send you a freak queen-cell, with the queen with her head where her tail ought to be. I found several workers dead in the cells from the same cause yesterday.

H. FITZ HART.

Wetumpka, Ala., Sept. 12.

[We have examined the freak queen-cell, and find, as you say, that the queen's head points toward the bottom of the cell. We have had a number of reports of cases like this. In the sample cell you sent, I note it is open. The queen herself, of course, could not have opened it with her head pointing the other way. It is possible, and even probable, that all cases of this kind may be explained by the fact that the queen (originally in the cell right end to) gnawed her way out, and then, pursued by rivals or bees, went back into the cell to hide. If she was very much frightened she might stay there, and in the meantime be confined by the bees drawing or contracting the opening of the cell. The opening of this cell seems to have been contracted slightly—whether by bees or how, it is impossible now to say.—Ed.]

PHACELIA AS A NECTAR-YIELDING PLANT; THE DIFFERENT SPECIES, ETC.

I have just returned from British Columbia, and in looking through GLEANINGS I see that you have had some correspondence about phacelia. I see there is no reply to Dr. Miller's request for information as to the sort of phacelia obtained from California, and grown in Europe as a forage and nectar yielding plant, nor has any one from California given any information in answer to your appeal on page 675.

I know thirteen species of phacelia in

Western-Middle California, and there are probably several more in other parts of the State, as the genus comprises about fifty species of mostly hardy annual and perennial herbs. Several species are visited by bees; but the one grown in Europe, *Phacelia tanacetifolia*, is literally covered with bees from morn till night. This species was introduced into Europe from California in 1832, and is called *tanacetifolia* (tansyleaved) from the resemblance of its leaves to those of the tansy. It is an annual with bluish-pink flowers; racemes spike-formed, elongated, corymbose; height of plant, two feet. It is grown in Europe as a bee-plant for its nectar, and it is the only one which produces an appreciable quantity of it. It certainly ought to grow in the North if treated as an annual. The phacelia of the florists in this country is quite different if I may judge from plants raised from seeds purchased here. This is known to botanists as *Phacelia viscida*, and by some florists it is called *Eutoca viscida* or *Eutoca viscosa*. The plant is about one foot high, and the flower is deep-blue with a lighter center. This is also a California plant, but I have never come across it in its wild state.

THOS. WM. COWAN.

Pacific Grove, Cal.

[I would state, for the benefit of some of our newer readers, that Mr. Cowan is editor of the *British Bee Journal*, and also the author of "The Bee-keeper's Guide" and of "The Honey-bee." The former has had a sale next to that of the A B C of Bee Culture, and the latter is a beautiful little scientific work. Mr. Cowan is one of the best-posted scientific men in all beedom, and therefore his statements above come with the weight of authority.—Ed.]

PHACELIA.

I see an inquiry in your journal of June 15th respecting phacelia. The plant about which inquiry is made is probably *Phacelia bipinnatifida*. It is a biennial, stem much branched, from one to two feet high, corolla light blue. It flowers in May and June. It is found on shaded banks, in rich soil, in Southern Ohio, Indiana, and southward. Sir Joseph Paxton's Botanical Dictionary mentions six other species of the same genus that are native in the warmer parts of our country, all of which are annuals.

D. S. HEFFRON.

Washington Heights Sta., Chicago, Ill.

THE TWO SPECIES OF PHACELIA.

Since the last communication in GLEANINGS concerning the phacelia reported to have been used as a forage-plant, I have been endeavoring to learn which of the group it could be.

The two species, *Phacelia congesta* and *P. parryi*, largely cultivated for their beauty, are each visited by the bees. The flowers of *P. congesta* are purplish-blue, while those of *P. parryi* are deep-blue. Prob-

bly one or both of these plants are the ones referred to by your correspondents and Dr. Miller. The enclosed letter from Mr. C. R. Ball, Agrilogist, U. S. Dept. of Agriculture, leaves little to be said as to the usefulness of any member of the group for forage.

J. FORD SEMPERS.

Aikin, Md., Sept. 16.

[The letter referred to is as follows:]

Mr. J. Ford Sempers:—So far as known there is no species of *Phacelia* which is known to have any forage value in this country, nor have I found a record of any species of this genus being used in Europe. With regard to the native range of *Phacelia congesta* and *P. parryi*, I will say that *Phacelia congesta* is a native of Texas, and *P. parryi* a native of Southern California.

CARLETON R. BALL,

Assistant Agrostologist.

Washington, D. C., Sept. 4.

SENDING QUEENS TO AUSTRALIA.

Kindly inform the Australian readers the best and safest way to send queens to Australia.

JOSEPH KNEEBONE.

Mt. Cole, Vic., Aus., August 21.

[We use a large Benton cage, and it may contain three, four, or six holes. We have also had good results with the three-hole cage with holes about an inch in diameter and $\frac{3}{4}$ deep. We have also had good results with a larger cage having six to eight holes, the holes being about $\frac{1}{2}$ to $\frac{3}{4}$ deep. There should be provision made for ventilation, and the candy should be just right. It is impossible to describe just how this should be made; but a few general directions may be helpful. In the first place, a pure pulverized sugar should be used. Be careful not to make the mistake of getting confectioners' sugar, as that has a large percentage of starch mixed with it. Such sugar will be death to the bees. If you can not get pure sugar, take ordinary granulated sugar, and powder it up in a mortar. Next select the nicest, thickest, and whitest honey you have. Mix enough of this honey with sugar to make a stiff dough. Let it stand a few days; and if it begins to run—that is, if the dough begins to flatten out like a pancake—knead in more sugar. Let it stand a few days more in a warm place. If the dough flattens out again, put in a little more sugar, but be careful not to overdo it. A candy that is too dry is almost as bad as candy that is too soft. The point to be observed is ventilation, and a candy that is just moist and just soft enough.—ED.]

THE VALUE OF COTTON IN MISSISSIPPI AS A HONEY-PRODUCING PLANT; HONEY FROM FOREST-TREES.

The season of 1901 was extremely backward, owing to the cold spring rains. June and July proved exceedingly dry, and I began to despair of any honey-flow, when I discovered the bees gathering most delicious honey in July. From close observa-

tion I found that they were working on the bloom of the cotton-plant, and could discover them on no other flowers. I heretofore deemed the cotton-bloom of little value as a honey-producer until convinced by this close examination during the drouth. The secret is, that the cotton-plant has an exceedingly deep tap-root extending down into the moist soil, making the blossoms rich in nectar. The honey is of a light amber color and excellent flavor.

In my long observation I have found that two-thirds of the honey here is gathered from the forest-trees and from vines, as instanced in the great overflow of 1897, when there was not a flower to be seen on the surface of the earth until the first of August. That season the honey-flow began early, and I gathered two-thirds of a crop of excellent flavor. Many years ago, when I gathered from 200 colonies, spring count, 14 gallons to the colony, there were immense forests close to the small village of Greenville, and the season was remarkably favorable—a mild winter and early spring with gentle showers throughout the season, with late frost in fall. The fruit and many forest-trees took on second bloom. Now the forests have been cut away, the result being a decrease of the honey crop.

Northern bee-keepers soon tire of this country, owing to the miasmatic diseases they are liable to in becoming acclimated, especially when locating in a heavily timbered place with decaying wood around them.

O. M. BLANTON.

Greenville, Miss., Feb. 1.

RENDERING HORSES IMMUNE TO STINGS.

On page 522, June 15, a subscriber complains that some of his bees were greatly disposed to attack his horses "ten or twelve rods from his colonies." If he will make a weak decoction of anise seed and wash the head, neck, and back of his horses, the bees will not be likely to trouble them. It has an aromatic odor, and a warm pleasant taste. It is sometimes used in domestic cooking. When the writer was a boy an old bee-hunter used to mix a little of a weak extract of anise with his honey, as the bees were extremely fond of it. A decoction freshly applied to the hands and face will prevent bees from stinging when swarming. Chewing the seed also aids.

D. S. HEFFRON.

Washington Heights Sta., Chicago, Ill.

[A decoction of anise seed might answer. But if bees are disposed to sting a horse, I do not believe that any thing that can be smeared on the animal will keep the bees off. A weak solution of carbolic acid might be even better than anise seed. If horses are very sweaty, and are compelled to do plowing or other heavy work near a beeyard, it might be advisable to neutralize the odor of the sweat with a spray of carbolic acid in weak solution or the anise-seed preparation. But I should attach no importance to either except for the purpose of neutralizing the animal smell.—ED.]

SHAKING SWARMS, OR DIVIDING.

You might call our way of shaking swarms dividing. We look the bees over, and all that are strong enough we mark "to be divided," and we send south for as many queens as we want, to have them get here about May 20. We put 7 frames of drawn comb into a hive; and after finding the queen we place a frame of unsealed brood in the middle of the new hive. Then we shake most of the bees from the old hive in front of the new one, leaving the old queen on the old stand. The old bees that return give us a good colony that will not swarm, and with 7 frames will give us lots of honey if there is any. We put the new queen into the new hive. This will fill three or four supers, and not swarm. Later in the season, when it is warmer, we often shake two lots together on to combs of foundation, giving them one of the queens.

We have never had good luck shaking swarms on to starters, as they will fill the bottom with drone comb, and make very little honey. I think the location must have something to do with this, as other people have good luck using starters with natural swarms.

I clip all of the queens in the spring. As Mr. Bacon is a very busy man I have to manage the swarms if there are any.

MRS. J. W. BACON.

Waterloo, N. Y., Sept. 1.

[If you read over the symposium in our issue for Oct. 15 on this subject you will find considerable stress laid on the fact that queens must be young or in their prime to keep down rearing drone comb. It isn't so much a matter of locality as it is the age of the queen.—ED.]

BRUSHED OR SHOOK SWARMS.

Mr. Root:—In GLEANINGS for Sept. 1 you ask for what we know about "brushed" or "shook" swarms. I have been practicing the method for about twelve years, and have two very strong reasons for so doing, and more especially since I have established one and sometimes two out-apiaries, and work them alone. This is a long story, and I hardly know what part of the practice you would like us to talk about. I clip my queens, and work exclusively for extracted honey, for I should have to go out of the business if I had to depend on comb honey for a living in this county. I now practice brushed swarms to keep down increase and to keep bees from leaving for parts unknown (and storing my profits in a hollow tree) by brushing the bees off the brood and distributing it in the nucleus rows, for here is where the after-swarm problem has been solved; for by this method I have no after-swarms. In this way we have a very strong colony or swarm on the old stand; and as I take only the brood, there is often a good start made in honey by leaving it in the brood-chamber or lifting it up into the extracting-super. I use the queen-excluding honey-board. I am preparing 200 colo-

nies for winter. These are in two yards, and have been run by the partially described method, or brushed swarms. You will excuse me for mentioning some of the whys and wherefores that so many people know; but I should like to have you take a snap shot at what I call my common-sense uncapping-can some time when you can stop long enough. W. HARMER.

Manistee, Mich.

THE MITER-BOX PLAN OF CUTTING FOUNDATION.

I have just been looking over your new catalog, and see there still the old system of cutting foundation with the knife or with a roller steel disk advocated. Now, this might do for a one to five hive apiary; but I have seen a plan mentioned in GLEANINGS that beats this all hollow. Make a miter-box, such as carpenters use, with cuts across, the size you wish to cut your sheets into. Now take one of those scalloped patent bread-knives; put your sheets—10 or 12, or as many as your box will hold—into the box and use the knife, drawing the knife toward you, using some pressure, and without using heat or hot water, as the knife will not stick. In this way you can cut 1000 or more pieces in a very short time. Try it. It is astonishing how many good things are published in GLEANINGS, and how few bee-keepers will ever try them.

M. R. KUEHNE.

Pomona, Cal., Sept. 18.

[You are correct. Our catalog ought to be revised in the matter of cutting up foundation, and it will be. But we have for several years sent out the Danzenbaker booklet wherein the method of cutting up foundation which you so much admire is fully described, illustrated, and recommended.—ED.]

THE EUCALYPTUS OF CALIFORNIA; A FEW INTERESTING FACTS ABOUT THE DIFFERENT VARIETIES.

Having had several inquiries in regard to the eucalyptus, I will, with your permission, make a general reply.

There are about 120 different varieties of this tree, over 40 already introduced in this State. The most common in Central California are *E. viminalis*, *E. robusta*, *E. rudus*, *E. globulus*, and *E. rostrata*. The illustration on p. 601, July 15, shows the *E. viminalis*, or "manna gum," the popular name having been given by botanists on account of the exudation from the bark at certain times, resembling manna.

From close observation and no little study during the past 17 years I find the *E. viminalis*, or "manna gum," the most valuable for general purposes. This variety grows rapidly, splits more easily than other varieties (though none splits easily), and its fuel value at the age of ten years is about 85 per cent of that of oak. It should not be used for fuel much younger. It has a fine grain, and takes a high polish without any

filler; will not be gnawed by stock; is the most hardy variety; will grow on pretty strong alkali soil; never sprouts up from the root, but will sprout up from the stump when cut down; and the bark, which this variety sheds at all seasons of the year, being of a resinous nature, makes excellent kindling, and can be easily broken with the hands.

All varieties of this tree are evergreens, but not good dooryard trees, on account of their leaves, which they shed every day of the year.

These trees should not have their lower branches trimmed off till they are five or six years old, as they grow out and droop to the ground, thus supporting the trunk, which, when trimmed up, has a tendency to grow any way except erect.

I have seen the *E. globulus* in the Sacramento Valley killed by frost when the *E. viminalis* was not touched in the same locality. It is the opinion of the writer that, in localities where the temperature falls below 20 degrees, and remains several hours, the eucalyptus would be in danger of being killed, though some varieties might withstand such temperatures.

It is difficult to get some varieties of eucalyptus from the nurseries true to name, as they closely resemble each other, and the temptation to substitute is very strong. I should want to examine personally before purchasing. They will not grow from cuttings, but must be propagated from seed.

Timber from the eucalyptus rots in a short time if put in the ground, but anywhere else it will last as long as any common wood.

It is the belief of the writer that no other variety of forest-tree in Central California will equal the *E. viminalis* to plant on our farms for profit, and I hope to see more large groves in the near future.

The *E. robusta*, which blossoms in October and November, secretes the greatest amount of nectar I ever saw in any one flower, and the bees give it almost their entire attention. J. C. McCUBBIN.

Reedley, Cal., Oct. 6.

BEEES ON SHARES; STIMULATING BY SPREADING BROOD, ETC.

No. 1. Suppose the farmer has bees in box hives, etc., and I find supers, and extract the honey, and help feed them, if necessary, for winter, what share should I receive— $\frac{2}{3}$ or $\frac{3}{4}$ or $\frac{1}{2}$?

2. Do you practice spring stimulating by reversing and spreading brood, say every week, as Doolittle speaks of in 1893 and 1901?

3. How about the daughters of that \$200 red-clover queen? Did you get any eggs from her this spring before she died? How did her daughters do this season?

4. How long before a bee is hatched can it sting or has formic acid in it?

R. F. WHITESIDE.

Little Britain, Canada.

[1. It is hard to advise in a case of this kind. If you perform all the labor and furnish all the supers, extract the honey, and feed them if necessary, your share should be considerably more than a half. Three-fifths would be hardly enough. You ought to have three-fourths of the crop, for it is not an easy matter to adjust supers to box hives. In the first place it would be money in your pocket, and in that of the owner of the bees, to transfer the bees to modern hives.

2. Sometimes we do and sometimes we do not. A great deal depends on conditions. If we have enough bees, and do not care very much for increase, we let the strong colony stand without much manipulation. But if we are handling weak colonies, and desire to get them up to a swarming-pitch, we practice spreading brood, a great deal as Doolittle recommends.

3. Yes, we have daughters of that red-clover queen, somewhere about 50, that we are reserving. They showed many traits of their mother, and their bees were excellent workers.

4. I do not know. I have been stung by bees just hatched, but the virus was not very strong, as I could only just feel the sting. I should judge the formic acid or poison is not very active until the bee has begun its active duties as a nurse. It is the field-bees that are well fed that can sting awfully. The same bees along in winter, or in spring when they are short of stores, will sting, but the virus does not seem so painful. The strength of the poison seems to depend on the health of the bee.—ED.]

TEXAS DROUTH BROKEN.

Mr. Root:—During the last two weeks we have had nine inches of rainfall, and this has extended all over the drouth-stricken part of Texas, or at least we believe it has from all the information we can get. This has been the worst drouth and the poorest season for bees in 25 years, so old settlers say. Every thing is preparing to bloom; we are having a second spring, and expect that the bees will go into winter quarters in fine condition, and may give us some surplus, as we expect a slow flow of honey for the next 60 days. The rains mean the salvation of the stock business; for unless it had rained, thousands upon thousands of head of cattle must have perished this winter. Since the rains commenced, grass has come to life and is growing finely.

THE HYDE BEE CO.

Floresville, Texas, Oct. 1.

HOW THE BEES WORK ON CATNIP.

We have considerable catnip growing wild along roadsides, fence-rows, etc. I noticed that from the time it came in bloom until now it was just covered with bees when the weather was fit for bees to gather honey.

F. J. STRITTMATTER.

Bradley Junc., Pa., Sept. 8.



And the Lord God said, It is not good that the man should be alone; I will make him a help meet for him.—GEN. 2:18.

About the first of September Mrs. Root and I went back to our Ohio home, she to stay about four weeks and I about two weeks. She worried somewhat about my plan of staying alone in our home in the woods for two weeks; but as I got on very well with my own cooking for two weeks last March, I did not apprehend any particular trouble or inconvenience. To my surprise, however, I began almost at once to feel very lonely and *very* homesick. It was not really *homesickness*, however, for I did not want any other *home*. I only longed for the bright little companion and "help meet" (as our text has it) who has all my life pre-ided over my home. In vain did I tell myself it was only two weeks, a few days at most, and I told myself again and again that, if I *kept busy*, the time would soon pass. To my surprise, however, it was not such an easy matter to keep busy. Ordinarily I can keep busy without any trouble. Ever since I was a boy this wonderful world has always presented to me enough to investigate and explore, so it has always been an easy matter to pass the time or occupy any bit of leisure time that came in my way; but here was almost a new experience.

I am going over this in considerable detail for I believe God sent me these few gloomy days just to enable me to speak comforting words to some other poor suffering brother or sister. I do not even now understand it; but this lost and lonely feeling took such possession of me that I lost interest and enthusiasm in every thing. In vain did I wander from one spot to another where I had until then found things without number to make me happy, but they had all lost their interest and charm. At every turn some object or some piece of work reminded me of the dear wife in a way that gave me a twinge of pain—no, that does not describe it. I turned from one thing to another sick at heart; and again and again I found myself moping about in a despondent way and doing nothing. I would have gladly gone back to Medina, but I could give no reasonable excuse for such a piece of folly and foolish waste of money, and I tried again and again to be a sensible *man* and *not* be "a baby." I presume one reason for this experience is that we two have been all summer long up here almost alone, and always together. We have worked and planned together in the house and out of doors. I have every day shown her my inventions and short cuts in doing work, and she in like manner has called my attention to some new thing of hers to make this little wild home attractive. If a young man of eighteen

or twenty had found some nice girl so agreeable that he felt as if he couldn't be happy even one whole day out of her sight, we older ones might smile, and think it nothing very remarkable; but that a man of *sixty-two* could neither work nor play because the wife he had lived with forty years was away for a *week*—why, it was *ridiculous*, and I told myself so over and over.

Something tells me right here that there are not a few men and women who would say, "Dear Bro. Root, did it not occur to you at that time that you might be *some* time called upon to give up this dear wife, nevertheless to see her here on this earth?"

Yes, it did come to me again and again, and I fell on my knees in my lonely room and said, "God have mercy on me a sinner. Forgive my foolish weakness, and help me to realize how much I have to be thankful for."

God did answer my prayer, and helped me to rise above such weakness, to a certain extent; but I felt for days as if the great Father was, through this experience, teaching me a wholesome lesson. I have felt a sympathy for those who have *lost* loved ones as I never did before. I once visited Prof. W. I. Chamberlain, now one of the associate editors of the *Ohio Farmer*. He was showing me and some other visitors over his farm, and talking in a very animated way. The subject of potato boxes or crates came up, and he called us all to come into his shop and see his "rig" for nailing them up. All of a sudden he stopped as if he had been struck a blow unexpectedly. There was a look of pain and suffering on his face I shall never forget. Without his knowledge some one had put his boy's wheel in the shop, I presume because he did not know where else to put it. The boy, one of great promise, had recently died suddenly. He explained, and excused himself by saying something like this:

"My God! there is that boy's wheel! If it were not for the hope of meeting him again, in the far-away future, dear friends, I should feel as if I could not live; and, in fact, I believe I should not *want* to live."

Well, I never realized, until I had this experience, just how the sight of that wheel filled my good friend's soul with anguish, nor how a real faith in God and his promises can bring tranquillity and *peace* when nothing else in this great wide universe can help. The greatest gift God ever gave to man was *woman*—at least his greatest gift to *me* has been my companion, my helper, my daily "comrade," as I often call her. I believe God *intended* man should consider woman as the gift above all other gifts. Do you suggest there are good women and bad women? My reply is that the wife is, at least to a very great extent, what the husband makes her.

Our text says, "It is not good that the man should be alone." I think this means that every good man should be a *married* man. I confess that, when I see a man oc-

cupping important positions in life (that is, when he has much to do with the welfare of the people), who is not a married man, I feel suspicious of him. Many times during my busy life men have confided to me the story of their troubles. They were good men who tried to do right, but they blundered, and had troubles without end, because they could not believe that God *knew*, when he said away back in the beginning, that every good man should have a *wife*. Men have committed suicide who would never have *dreamed* of such a thing had a wife and children been the daily sharers of their joys and sorrows. Of course, I have in mind *Christian* homes. The love of God *sweetens* the home. It brings happiness and joy. Reading the Bible every day, and giving God thanks before every meal, without putting in actual practice Bible teachings, may not bring happiness; but this is an age of practical Christianity. I have been learning some lessons. Mrs. Root and I do not always exactly agree—well, let us say in regard to building “a cabin in the woods.” When we don’t agree, after full discussion, what then? Well, during the days I have mentioned I pondered over the fact that at such times I decide the matter and *she*, of course, submits. If it transpires she was right and I wrong, she rarely says, “There, I told you so.”

I am going to say something now that will make Mrs. Root scold “awful.” I suppose, when she sees it in print; but I am sure it will do good, and be helpful in many “homes.” When we were first married, and, for that matter, for years after, I considered myself greatly her superior. I am afraid I never realized it until God gave me that recent experience. Dear little woman! She in her foolish but loyal regard for her husband thought so too. Now, then, boys (or men), how many of you are there who *are* and *have been*, say all the years of your married life, in the habit of looking *down* on the dear little wife? Well, little by little God has been teaching me that the woman he gave *me*, take it all around, is fully my *equal*, and of late he is teaching me that in many things, if not all, I may safely look *up* to her and not *down*. If you wish to straighten a steel rod you must spring it considerably *past* the straight line, so that, when it springs back, it will be right. In a like way, when I advise the rank and file of married men to cultivate a habit of looking up to their wives, rather than down, I expect the result in the end to be that there shall be no “up and down” about it. It is true, God made *man* first; but for all that, *woman*, in the moral and spiritual life, has always stood, and I think always will stand, above him. It is fitting and proper that the *mothers* of the human family should be nearest to God of all mankind.

The day after Mrs. Root and I were married, as I sat by her side in a carriage on our way to the station, the thought of having her for a constant companion through

life filled me with joy. I presume most men have had a similar experience. It is right and proper. It is what God intended. Old heads often tell us, however, that this is a sort of boyish devotion, and that it can not last. I can not say now, after forty years have passed, whether or not I thanked God that morning for his great gift and for that great happiness; but I fear I did not. Of this, however, I am sure: My boyish dream has been more than realized; for at sixty-two I prize the gift *more* than when God gave it when I was a boy of twenty-two. Now, please do not misunderstand me. I did *not* prize this gift until I gave my heart and all I have into the keeping of the Lord Jesus Christ. I might have lost it or thrown it away as thousands do (divorce or desertion) who neglect or reject God’s call. If some one should say that I have said some of these things before, I reply that I felt *God* wanted me to say them again.



GOING TO THE COUNTY FAIR; CHAPTER I.

I have said every year since spending my summers in Leelanaw Co. that I must attend the county fair to see what this region produces besides potatoes, peaches, etc.; and this fall it was held October 1 and 2, just when I was so homesick because Mrs. Root was away. I told myself it would be just the thing, or, perhaps I should say, just the *diversion*, I needed. It is held every year in a little town called Maple City, on the other side of Carp Lake; and as no railway runs there I decided to make the 18 miles on my wheel. This would be an easy matter with level roads; but on account of the hills and sand it was thought best to make a part of the trip by rail. At Fouches Station I asked for a ticket to Solon; and, finding the price was only *nine cents*, I replied I could make it on my wheel while waiting for the train.

“No, you can’t, stranger,” said the agent; “and if you try it, when you get over the hills and sand you will think the nine cents for three miles is well invested.”

From Solon to Cedar I had a pretty fair road; and as Maple City is only four miles further, and the sun was still above the treetops, I decided to push on before dark. I went through Cedar so hurriedly I had only time to notice the two most prominent business buildings were saloons, and that one whole side of the buildings was used to announce the merits of their celebrated “Beer,” in letters a foot long or more. Pretty much all the towns in this part of Michigan keep “open” saloons; and I am told this is in utter defiance of all and every law. As I wheeled out of the town I

began meditating why the Michigan Antislavery League was so slow in getting to work in this part of the State as it had agreed to do, when my meditations were brought to a sudden stop.

As I left the town my course was down hill to a piece of road cut through a swamp. As I got into the swamp, riding at a fair speed, I noticed the stub of a stump right across the cycle-path. This stump had been cut away on two sides so as to leave a long wedge or inverted V sticking up. I saw by the tracks that the boys had been riding up one side of this V and down the other; and although I knew it was a little risky, as I was in a hurry I decided to try it. I should have gone up and down and over it all right, but my pedal happened to come down just right to strike the sharp edge of the V, and, of course, over I went on the opposite side. As I went over almost on my head, I noticed some long soft grass to fall on, so I did not feel at all troubled about the tumble; in fact, I am pretty well used to it on my wheeling-trips. I have told you about the beautiful spring water of this region, with its sparkling clearness, etc. Well, the springs from the surrounding hills have made quite a little stream that runs through a ditch by the roadside through this swamp, and it has recently been cleaned out and deepened, so the sides are nearly straight down. My soft bed of rank grass that looked so innocent really extended over the side of this ditch; and my fall, instead of being into soft grass, was into very cold soft water. Anybody could see that I was a "cold-water man," sure, as I arose from the bottom of that spring run, gasping for breath and "grasping" the long grass to help me climb up the steep mucky side. But this same grass was treacherous still; for, just as I was almost out, the grass came up by the roots, and back in I went again. When I finally wheeled up between the saloons, and inquired for the best hotel, a big stream of water was running from each of my overcoat pockets; in fact, I poured about a quart out of each pocket after I got to the hotel. It took me till bedtime to dry out my "duds" by the assistance of a big hot stove. I will tell you about the fair in Chapter II.



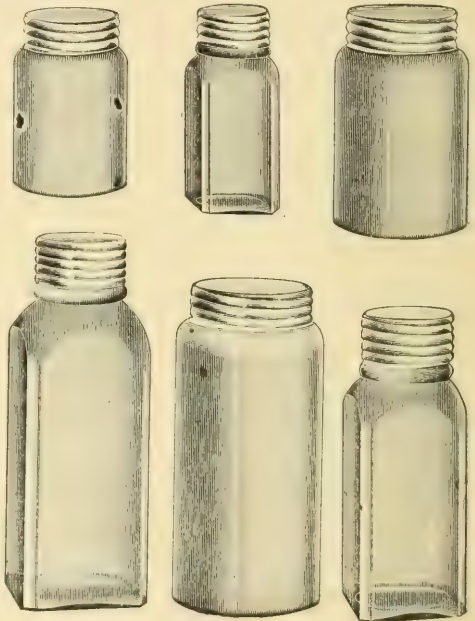
A B C OF BEE CULTURE.

The last edition of the A B C of Bee Culture is entirely exhausted excepting a few copies which may be in the hands of dealers and agents at various points, and the new edition in preparation will not be completed till December or January next. We are having orders daily which we are unable to fill; and when the new edition is out every one will want that rather than the old. If this notice catches the eye of any one having any extra copies of the edition of 1901 on hand which they would like to dispose of we would esteem it a favor if they will notify us how many they have, and we may be able to use them on urgent orders from those who prefer not to wait for the new edition. The

changes in the new edition are quite extensive and important; and many having a copy of some former edition will want one of the new. We are booking orders already. If you order, it may be the best to specify the new edition and avoid the possibility of having one of the old mailed to you.

THE HERSHISER HONEY-JARS.

These jars were designed for use in the honey exhibit at the Pan-American Exposition in Buffalo, and are very neat and attractive. They have cork-lined aluminum caps which seal them tight. If for any reason you desire to make them doubly sure they may be closed with a cork like an ordinary jar, and then screw on the cap, which gives them a very neat and attractive appearance. The fact that the molds are constructed for making the jars by hand instead of by machine, and the addition of the aluminum caps, makes the jars somewhat more expensive than the ordinary jars. They are made in four sizes square and three sizes round, as shown in the illustration. We can supply them either from here or from Philadelphia at the following prices:



| | | | | |
|---------------|-----------------------------|------|---------|---------|
| $\frac{1}{4}$ | lb. square Her. jars, doz., | 50c; | \$ 5 40 | per gr. |
| $\frac{1}{2}$ | " " " " " " | 55c; | 6 00 | " " |
| 1 | " " " " " " | 80c; | 9 00 | " " |
| 2 | " " " " " " | 1 00 | 10 80 | " " |
| $\frac{1}{2}$ | " round " " " " | 60c; | 6 60 | " " |
| 1 | " " " " " " | 75c; | 8 40 | " " |
| 2 | " " " " " " | 1 10 | 12 00 | " " |

These prices, although rather high in comparison with other jars, are as low as can be made on hand-made jars, and afford us a smaller margin of profit than other styles. If the demand warrants, we should be justified in having molds made for machine-made jars, which could be had at a reduced price.

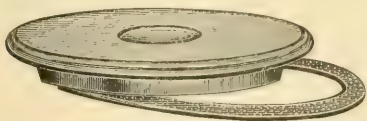
TIP TOP HONEY-BOTTLES OR JARS.

We believe many of our readers, especially those interested in bottling honey, will be interested in a hon-

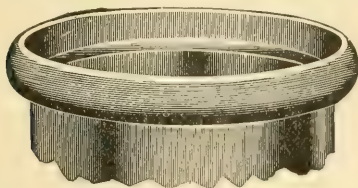


ey jar with spring-top fastener which we show here. I believe Mr. York, of the *American Bee Journal*, has

called it the Tip Top jar, and we adopt the name. He has been using it in his bottled-honey trade in and about Chicago for a year or two past with marked success. The following illustrations show very clearly how the jar is sealed. The rubber ring between the



rim of the glass top and the shoulder in the opening of the jar's mouth, with the pressure exerted by the spring on the center of the top, makes a perfect seal with continuous pressure, because of the spring of the metal clasp. With this kind of a fastening the jar is



very quickly sealed—more quickly and securely than with a rim. The cover fits down in so neatly that, in order to remove, you may have to insert the end of the spring under the edge to pry it out.



There is a great variety of bottles and jars of numerous sizes made with this kind of fastening. Even the one and two pound square honey jars may be had with this fastening at an additional cost of 75 cts. per gross over those with a cork. We show here two styles which seem best adapted for honey. The round tapering jar is the one we call Tip Top. We can supply those in two sizes— $\frac{1}{2}$ lb. at \$4.50 per gross, and the 1-lb. jar at \$5.00 per gross. Put up in partition cases of 2 dozen each, \$1.00 per gross extra.



The octagon jar we will not keep in stock, but can ship from the factory in Ohio at \$5.00 per gross for the 1-lb. size. We can supply this to hold $\frac{1}{2}$ lb. or 14 oz. Orders should be for at least 5 gross at a time. The Tip Top is a little scant measure, the 1 lb. size holding 15 oz. and the half-pound about $7\frac{1}{2}$ oz., actual weight of honey. This price, you notice, is less than the price of No. 25 jars or square jars either, and we believe it is neater in design. The jars may be used for fruit or preserves or pickles after they are emptied of honey, which fact adds to their value as a honey-jar.

MANN'S BONE CUTTER MAKES HENS PAY

BECAUSE

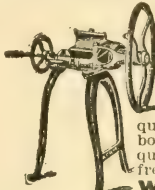
It provides the cheapest and most productive food. Hens can't help laying when fed green bone. We'll send you a Mann's Latest Model on

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No money until you are satisfied that it cuts easier and faster than any other. If not return at our expense. Isn't this better for you than to pay cash in advance for a machine you never tried? Catalogue free.

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Box 37, Milford, Mass.





A FRIEND
to poultrymen—to chickens.

Adam's GREEN BONE CUTTER

It runs easily because it has ball bearings. It cuts clean, quickly and perfectly. Makes a fine bone shaving such as chickens require. Before you buy send for free catalogue No. 39

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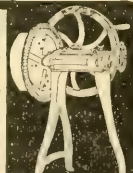
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follow the feeding of cut bone. The

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is the simplest fastest and easiest bone cutter made. Price \$3.00 up. Sold on 15 days trial. Satisfaction or no sale. Send for price book and Special Proposition.

Scranton, Me., U.S.A. Box 54, Erie, Pa.





MORE EGGS—LESS FEED
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will double your egg yield and cut your feed bill in half. Guaranteed to cut easier and faster than any other. Trial offer and catalogue free.

HUMPHREY & SONS, Box 51, Joliet, Ill.

The **Stearns** **New Model Bone Cutter**

cuts finest and easiest. Send for catalogue and special trial offer free.

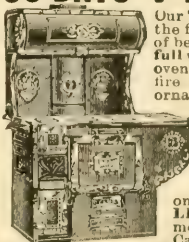
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Dealer's price, Our \$65 direct price **\$17.95**

\$31.75, others low as Perfect operation. Guaranteed for five years. Saves cost in one year. **HUMPHREY'S—COSTS LESS—LIVES LONGEST.** No money in advance—Send for our Catalogue.

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To make cows pay, use Sharples Cream Separators. book "Business Dairying" & cat. 288 free. W. Chester, Pa.

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Fifty-two-page catalog for 1903 will be ready to mail for the asking by November 20th. Be sure to tell us where you saw this ad. If you do tell us that you saw it in GLEANINGS we will send you a nice package of flower or vegetable seeds absolutely free, but of our own selection.

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BY RETURN MAIL.

We are now breeding from three distinct strains; viz.: Imported or leather color, Root's long-tongued or red-clover strain, and our old strain of white-banded yellow Italians, or albinos.

PRICES:

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| Tested, each.. | \$1.25 |
| Select tested, each..... | 1.50 |
| Warranted purely mated, each.... | .75 |
| Same, per half dozen..... | 4.00 |
| Same, per dozen..... | 7.50 |
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We have also a full line of bee-keepers' supplies including THE A. I. ROOT COMPANY'S GOODS. Send for our 32-page illustrated catalog.

W. W. Cary & Son,
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Special Notice to Bee-keepers!

Root's Supplies

at Catalog Prices.

Chaff Hives.

Winter-cases. For

Chaff Division=boards. Winter.

Hill Devices, etc.

F. H. Farmer, Boston, Mass.

182 Friend St. Up one flight.

Queens! Queens!

We have five different yards, 5 to 20 miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos are bred for business. You can send in your orders at following prices the rest of this year: Tested, \$1.50 each; \$8.00 for six; \$15.00 per doz. Untested, 75c each; \$4.25 for six, or \$8.00 per doz. Fine breeders, \$5.00 each. Safe arrival guaranteed. Write for free catalog. Tells how to raise queens and keep bees for profit. The Jennie Atchley Co., Beeville, Bee Co., Tex.

For Sale. A bee-hive factory; well equipped with latest machinery—and a good bee-hive and supply trade; a bargain. Reason for selling—too much other business to attend to it.

THE JENNIE ATCHLEY CO., Beeville, Tex.

Moore's Famous Long-Tongued Italian Bees.



Another report showing their superior honey-gathering qualities:

Ruthton, Ky., Oct. 1, 1902.

J. P. Moore Dear Sir:—The selected breeder you sent me last year was as good as I ever saw, her colony storing 175 lbs. extracted honey in a yard where the average for 27 colonies was 85 lbs. per colony.

Yours truly, VIRGIL WEAVER.

Daughters of my ²³/₁₀₀-breeder, the prize-winner, and other famous long-tongued breeders: Untested, 75c each; six, \$4.00; dozen, \$7.20. Select untested, \$1.00 each; six, \$5.00; dozen, 9.00. Safe arrival and satisfaction guaranteed. Circular free.

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The Best of Everything



THE through train service of the Chicago & North-Western Railway from Chicago to Omaha, Denver and the Pacific Coast on the west, the Black Hills and Dakotas to the northwest and to Milwaukee, Madison, St. Paul, Minneapolis and Duluth on the north, is as nearly perfect as modern and skillful management can make it.

The Overland Limited, a magnificent electric-lighted train, less than three days Chicago to San Francisco, daily.

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The North-Western Limited, an electric lighted daily train between Chicago, St. Paul and Minneapolis.

H. R. McCLELLAND, 3d Vice-President. W. B. KRISKEEN, Passenger Traffic Manager. CHICAGO, ILL.

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Liberal Advances Made on Consignments. Wholesale Dealers and Commission Merchants. Established 1875.

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A Special Offer on the Review.

If the advertising that I have been doing the past three years has not convinced you that the Superior Stock that I have been offering for sale is really superior, then it is the fault of the advertising, for the stock is really all that I claim for it. I have guaranteed safe arrival, safe introduction, purity of mating, and satisfaction to the extent that a queen may be returned inside of two years, and the money will be refunded, together with 50 cts. to pay for the trouble. No other breeder makes any such guarantee. I have sold hundreds of queens under it. I do not know of a single dissatisfied customer, while I have dozens of letters from men telling of increased results from the introduction of this stock, and asking: "Can I get any more queens of you like one I bought two years ago?"

Although the price of these queens is \$1.50 each, I have never been able to keep up with the orders.

Most of my customers wait until spring before sending in their orders, and then have to wait from four to eight weeks. A few are far-sighted enough to send in their orders in the fall or winter, and these get their queens in May or June, in time to be of some service to them the same year. Send \$1.50 now and I'll book your order, and you will get the queen early next spring.

The price of a queen alone is \$1.50, but I sell one queen and the REVIEW one year for only \$2.00. Just at present, as explained in the last issue of GLEANINGS, as long as the supply of back numbers for 1902 holds out, all new subscribers for 1903 will receive them free. In other words, if you order soon you can get the REVIEW for 1902 and 1903, and a queen of the Superior Stock next spring, for only \$2.00.

W. Z. Hutchinson, Flint, Michigan.

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Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

A prominent queen-breeder writes: "I have reared and sold over 5000 queens in the past few years, and I am using your stock exclusively, as it is the best I can get." Another writes: "The queen mother I got of you is the best queen I ever saw." A prominent writer for the REVIEW states the Laws queen is making a fine showing. Many nice letters indicative of the superiority of Laws' queens on file. Prices: Tested or untested, \$1.00 each; six for \$5.00. Discount on large lots. Write for circular.

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Manufacturers of
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Orders filled promptly. We have the best shipping facilities in the world. You will save money by sending for our price list. Address

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We need your orders, and you need our goods, so let's trade. We have the very best goods, the largest stock in the State, the best place in the U. S. to ship from, and the very lowest prices consistent with first-class goods. Write to us and tell us your wants.

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For what it will produce over \$500 per acre in vegetables. Also partner wanted in nursery, orange, and pomelo grove. State your capital when writing.

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Besides reflecting all the doings and happenings and the latest methods and appliances that pertain to bee-keeping in the great Rocky Mountain alfalfa regions, we talk up co-operation and organization as no other bee-journal has ever undertaken to do. This journal will give you new ideas, and help you whether you own one colony or 5000. You need it. The 10-cent trial offer is withdrawn. Samples free.

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and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts, if you mention Gleanings (reg. price, 50 cts).
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The Fred W. Muth Co.

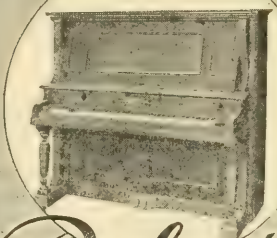
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Muth's 1-pound square with patent glass stoppers and steel spring are the best. 40¢ Only \$5.50 per gross. Send for catalog of bee-supplies.
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Highest Artistic Creation

Are you considering the purchase of a piano? Our proposition will prove more entertaining than any you have had. Catalog and full information free on application.

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P. O. Box F Fort Wayne, Indiana



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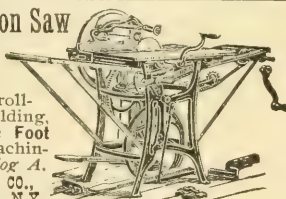
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With the Otis Ball Bearing No. 2 Mill.

Grinds ear corn and other grains fine or coarse.

Grinds faster than any other two-horse mill made.

Burs are 2 1/2 in. diameter of improved shape to draw the grain down into them.

Pulls easier as it runs on ball bearings.

GUARANTEED TO GRIND

AS MOST OTHERS AND 33 MORE THAN ANY OTHER

2-h. mill made of any construction. Largest 2-h. mill made. Our Prices are low because

WE HAVE NO AGENTS.

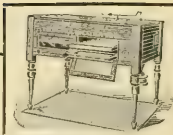
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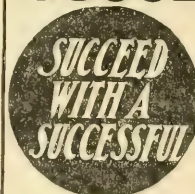


Brings Big Hatches

That's the test of an incubator and that's the record of the



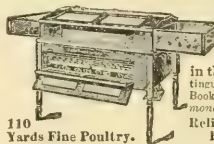
SUCCESSFUL.



Don't experiment. Get a time tried and proved incubator. The successful not only hatches perfectly, but it will last a life-time—does not swell nor shrink. Get our big incubator book (156 pages) free. Other catalogues in 4 languages.

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110
Yards Fine Poultry.

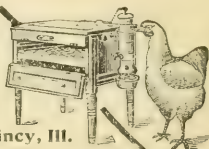
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\$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

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TRY AN IDEAL.

J. W. Miller's incubator—made by the man who knows. It is really self-regulating.

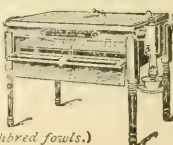
30 DAYS FREE TRIAL

We get no money until you are perfectly satisfied. Poultry Book Free.

J. W. MILLER & CO.

Box 48, Freeport, I. I.

(Poultry supplies and thoroughbred fowls.)



NOTHING AS GOOD ADVERTISED ANYWHERE.

SHIPPED ON APPROVAL

Anywhere in United States. NO MONEY IN ADVANCE.

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from \$725 to \$2650

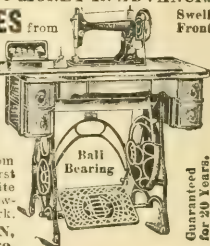
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CASH BUYERS' UNION,

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Guaranteed for 20 Years.



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Grand lot of trees, grown on the bank of Lake Erie, more stocky and hardy than trees grown in the interior; two miles from any peach orchards and free from borers and all other diseases. Large stock of fruit trees and small fruits of all kinds. Headquarters for

ORNAMENTAL TREES, SHRUBS, BULBS.

40 Acres Hardy Roses. 44 Greenhouses filled with Palms, Ficus, Ferns, Pandanus, Roses, Etc. Correspondence solicited. Catalogue free.

THE STORRS & HARRISON CO.,

Painesville, Ohio.

Gleanings Clubbing Offers.

We have just arranged with Mr. C. M. Goodspeed, of Skaneateles, N. Y., whose advertisements are found on pages 916 and 917, to provide our subscribers with special opportunities for securing leading magazines and other periodicals at low prices. Send your orders early and secure prompt service by mentioning GLEANINGS every time you write. Don't delay. Publishers are crowded with orders later on, and better service is given now than later.

OUR ADVERTISERS.

In a recent letter from the Page Woven Wire Fence Co., of Adrian, Mich., they say:

"We were never so well equipped as at present to furnish Page Fences. Having our own steel, rod, and wire mills, and having very largely increased our weaving capacity; with about 1400 employees on our pay roll, converting the iron into high-carbon steel, the steel into ingots, blooms, billets, rods, and wire, and with double the number of looms that we had January 1, 1900, we feel that we are in pretty good shape to supply the demand for 1903.

"We make a standard style of fencing for every farm, poultry, stock, or railroad requirement; use double-strength horizontal wires in all these styles coil or spiral every one of them from end to end the whole length of the fence, thus providing for expansion and contraction, and Page Wire will retain this coiled shape even after it has been drawn out straight a thousand times.

"No locks, staples, or other devices are used to hold the horizontals and cross-bars together, because Page Fence is a real woven-wire fence. Horizontals and cross-bars woven together is all there is to it."

Their advertisement appears regularly in our columns, and if you have not yet investigated the merits of their fencing, you should write for catalog, descriptive matter, and prices now.

TREES, VINES, PLANTS

in large supply at lowest prices. Send list of wants for quotations. "Honest trees at honest prices."

E. A. BOAL CO., HINCHMAN, MICH.

Angora Goats

are handsome, hardy, profitable Prize stock; low price; circular. Ed. W. COLE & Co., Kenton, O

1200 FERRETS.

All sizes; some trained; first class stock. New price list free. N. A. KNAPP, Rochester, Lorain Co., Ohio.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Comb to render into wax; will pay cash. A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To sell blackwalnuts and hickory-nuts at \$1.00 per bushel. A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange for wood-working machinery, wax, or honey, a 12-tune Swiss music-box with harp, drum, chimes, and castanet attachments. Address 216 Court St., Reading, Pa.

WANTED.—To sell 60 colonies of Italian bees, in good condition for winter. Cheap if taken before packing for winter. J. FERRIS PATTON, Newtown, Ohio.

WANTED.—To exchange sweet-clover seed for cash or offers. Remember what Dr. Gandy said about sweet clover. We are headquarters for the seed. THE SNYDER BEE & HONEY CO., Kingston, N. Y.

WANTED.—A location for a custom saw and feed mill. WM. S. AMMON, Reading, Pa.

WANTED.—Flint-lock muskets dated 1812, 1815, 1816. Will exchange modern fire-arms for same, or will buy. Address 216 Court St., Reading, Pa.

WANTED.—To buy in California 100 to 400 stands bees. Must be cheap. Address F. J. FARR, Pasadena, Cal.

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WANTED.—To sell. Having received a government position, I am compelled to sacrifice my apiary, poultry, and fruit business, located on 15 acres of fertile land on navigable tide-water river, about 25 miles from Richmond; six-room dwelling, kitchen, hen-house, about 60 colonies of bees, implements, etc. No malaria; very healthy. Price, real estate, \$750; bees etc., about \$250. R. F. RITCHIE, Richmond, Va.

WANTED.—To sell a two-horse, double-gear, level-tread power; Heebner & Son's make. S. H. MUSSELMAN, R. F. D. 4, New Holland, Pa.

WANTED.—To trade 160 acres of rich, level, black land for bees. Write full particulars in first letter. D. E. L'HOMMEDIEU, Colo, Story Co., Iowa.

WANTED.—To sell a mill property, water power, with considerable land, and houses, as desired. Good location for bees or for milling and feed business. For particulars address I. L. POWELL, Millbrook, New York.

WANTED.—A good reliable man to take a half-interest with me, as soon as possible, in a newly established apiary which I wish to enlarge. Must have the necessary cash, say \$300 and be well acquainted with the bee business. Don't delay. W. S. COOPER, 123 South Flores St., San Antonio, Tex.

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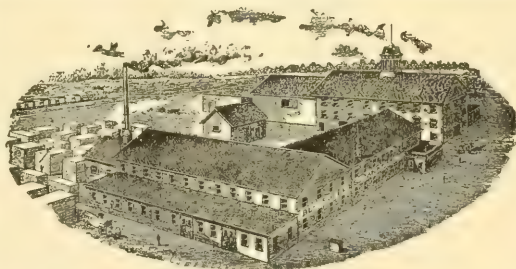
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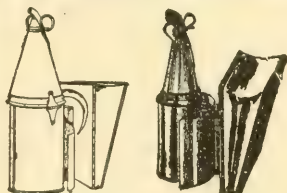
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T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

MILWAUKEE.—This market is very quiet on honey, and the receipts are fair and the offerings more frequent, indicating that there is a good supply unsold. The demand is moderate, mainly from the smaller dealers—the large buyers being very well supplied at present. We continue to quote fancy comb 15@17; No. 1, 14@15; old and amber, nominal, 12@14. Extracted, in barrels, kegs, pails, and cans, white, 7½@8½; amber, 5½@6½. Beeswax, 28@30.

A. V. BISHOP & Co.,
119 Buffalo St., Milwaukee, Wis.

CHICAGO.—Prices remain steady but the demand is small. We are not selling the quantity that we have ordinarily done at this season of the year. The advance in price has checked the trade, in addition to which retailers have got the impression that honey is going to be very scarce and they are not pushing its sale. Fancy white comb brings 15@16, with travel-stained from 14@2c less; amber, 12@13, according to kind and style of package; amber and buckwheat, very little call for. Extracted white, 7@8; dark and amber, 6@7; Southern slow at about 5½. Beeswax sells upon arrival at 30.

R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

PHILADELPHIA.—Comb honey in brisk demand. We are now in the height of the season. We quote fancy white comb, 15@17; No. 1, 14@15; culls, 10@12. Extracted, fancy white, 9; amber, 7@8. Beeswax, 29. We are producers of honey, and do not sell on commission.

W. M. A. SELSER,
10 Vine St., Philadelphia, Pa.

NEW YORK.—There is a good demand for comb honey; extra fancy is worth 16½; fancy, 15½; buckwheat, 12@13. Extracted, Southern, in barrels, 4½@5½, and supply limited. Beeswax 27.

FRANCIS H. LEGGETT & Co.,
Nov. 7. Franklin and Varick Sts., New York.

DETROIT.—Very little honey in market—mostly in small lots held by retailers. Fancy white, 17; No. 1 dark, 12; 14, with no great supply and not much demand. Extracted white, 7@7½. Beeswax, 26@28.

Nov. 9. M. H. HUNT & SON, Bell Branch, Mich.

NEW YORK.—Demand for comb honey is good, and same finds ready sale at 15@16 for fancy white; No. 1 white, 14; No. 2 white, 12@13; buckwheat, 12@13. Extracted in fair demand at 7½ for white; light amber, 6½; dark, 6; southern, in barrels, 60@65 per gal. Beeswax, quiet, 27@28.

HILDRETH & SEGELKEN,
Nov. 8. 265-7 Greenwich St., New York City.

KANSAS CITY.—The receipt of comb and extracted honey is light, and the demand good at quotations. We quote fancy white comb, 15@16; No. 1, 14½@15; No. 2 white and amber, 13½@14. Extracted white, 7½@8; amber, 6½@7. Beeswax, 27@30.

C. C. CLEMONS & Co.,
Nov. 7. 306 Grand Ave., Kansas City, Mo.

BUFFALO.—Fancy white-clover comb, 15@16; A No. 1, 14@15; No. 1, 13½@14; No. 2, 12@13; No. 3, 11½@12; No. 1 dark, 11½@12; No. 2, 10@11. Extracted white, 6@7; dark, 5@5½. Beeswax 30@32. Comb honey is in extra good demand. Can sell in large quantities by shading prices about ½c.

W. C. TOWNSEND,
Nov. 8. 167 Scott St., Buffalo, N. Y.

SCHENECTADY.—Both comb and extracted moving freely at the following prices: Fancy clover in cartons, 16; No. 1, 14@15; buckwheat, 12@13, and quite scarce. Extracted, in 60-lb. tins and 150-lb. kegs, white, 7@7½; dark, 6@6½.

CHAS. McCULLOCH,
Nov. 7. 523 State St., Schenectady, N. Y.

ALBANY.—Honey market still firm and in better shape than for many seasons—comb selling for 14@16. Extracted buckwheat grades most in demand now at 6½; light grades, 7@7½. Beeswax, 30. We can get our quotations easier now than when market lowers. Commission 5 per cent.

MACDOUGAL & Co.,
Nov. 7. 375 Broadway, Albany, N. Y.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Light extracted honey; cans and kegs, 7@8c per lb. Sample, 8c.

I. J. STRINGHAM, 105 Park Pl., New York City.

FOR SALE.—Several thousand pounds comb honey in Danzenbaker 4×5 sections. Shall commence filling orders in August. WM. MORRIS, Las Animas, Col.

FOR SALE.—White extracted honey from alfalfa in 60-lb. cans, at \$4.50 each; light amber honey mixed with Rocky Mountain bee-plant, fine flavor, \$4.20 each. Prices on small cans and pails on application.

M. P. RHOADS, Box 216, Las Animas, Colo.

FOR SALE.—Fine quality of extracted honey, both clover and sweet clover, in 60-lb. cans, at 8c; also bees in L. frames. Do not send local checks.

DR. C. L. PARKER, Sta. A., R. F. D., Syracuse, N. Y.

FOR SALE.—Extracted honey, from alfalfa, at 7½c for No. 1 select, 7c for No. 1, 6½ for No. 2; discount on 1000-lb. lots. Send for sample.

D. S. JENKINS, Las Animas, Col.

WANTED.—Comb honey, all grades, carload lots or less than carloads, for cash. Correspondence solicited.

JOS. M. McCAUL,
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We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer.

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Mr. A. I. Root's Writings

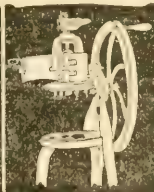
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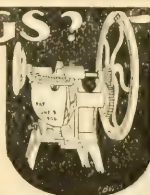
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| { 100 lbs. white sweet-scented clover, | \$10 | 100 lbs. White Dutch, | \$20 |
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TO BEES
AND HONEY
AND HOME
INTERESTS.

ILLUSTRATED
SEMI-MONTHLY

Published by THE A. I. ROOT CO.
\$1.00 PER YEAR MEDINA, OHIO

VOL. XXX.

NOV. 15, 1902.

No. 22



ARE THE SEASONS changing? Oct. 24 a number of bees were working on red clover, and at least one on white clover; Oct. 25 we picked nearly a quart of large ripe strawberries that were fine; and now in the first of November roses are still in bloom, lilacs have put forth young leaves, and some of the lilac-blossoms are fully out.

IT SEEMS to be the common belief that the new growth of white clover, although having abundance of bloom, never secretes honey. Is that correct? Does no seed result from such bloom? Can we have an authoritative answer from our experiment stations or some one else? [I have also seen it stated that the new growth of white clover does not yield nectar. If that is true, then we would naturally expect nectar next season if conditions are favorable. Yes, by all means let us hear from our experiment stations or from any one who can give us authoritative information.—Ed.]

T. K. MASSIE, p. 907, advocates the advantages of closed-end frames over loose hanging frames. A footnote adds, "All that you say of closed-end frames is equally true of the half-closed end or Hoffman." Let me add, "All that you say of closed-end or half-closed end or Hoffman is equally true of open-end frames when properly self-spaced." [No, not quite. It is easier to handle closed-end or half-closed-end frames in groups of two, three, or four, or *en masse*, than it is to handle an equal number of metal-spaced frames like yours. The wood-spaced frames can be set down in a bunch leaning up against the hives, and they will *cling together*. You may say that is not what you want. Very likely. But some do prize it. I grant, however, that many things that we can do with the

regular closed-end or Hoffman frames you can also do with your nail-spaced frames.—Ed.]

AFTER I HAD READ aloud what A. I. Root wrote in last GLEANINGS, one of the women asked, "What *do* they stay in that cabin in the woods for?" I replied, I don't know." [Because they do not know whether Northern Michigan will be their permanent summer home. If the climate does not "wear out," if the potatoes and other crops turn out as they did the past summer—in short, if they like it, they will probably put up a more pretentious dwelling. But there is one thing about that small cabin—it is so small that my good mother does not have big rooms and large porches to keep clean. She won't have help; and as long as she won't, a small house gives her a chance to rest.—Ed.]

I DON'T KNOW for certain, Mr. Editor, just what your position is. Please tell us just what it is that bees prefer to old black comb, and for what purpose they prefer it. [When it comes to winter-nests, then the old comb has the preference, of course; but in my comment on page 884, and in my later reference to the same thing, page 888, I had in mind not so much the *bees* as the *queen*—that is to say, it was my observation that a queen preferred to lay in combs partly drawn out on foundation. In the comments to both, I see that I have not defined myself; but in view of what you say, perhaps I shall have to admit that the bees may have a preference for old black comb, even for storing. My own mind is not quite clear in the matter.—Ed.]

ALFALFA flavor is mentioned, p. 887, as being "so pronounced." I have always thought of it as being very mild in flavor, and on that account keep it for daily use in drinks. I know well what its flavor is, but am probably mistaken in thinking that there are not other honeys much milder. What do you consider mildest, Mr. Editor? [Alfalfa flavor, while not so pronounced as that of basswood, yet to my taste is stronger than that of ordinary white clover. We know this—that, when alfalfa is used for the bottling trade in some localities, in

place of white clover or basswood, objection is immediately raised that it is adulterated because it tastes different from honey they have been accustomed to; hence my advice to use a little alfalfa in with basswood or clover, and make a blend so that the trade will not cry "adulteration" when one kind of honey is short and another kind is used more largely in the blend to piece out.—Ed.]

I AM DELIGHTED to know that at last we are likely to be waked up as to phacelia. Mr. Cowan is the only one who mentions *Phacelia tanacetifolia* in last GLEANINGS, and I am confident that he is right about that being the forage-plant in question. I think, however, he is wrong in thinking the phacelia of the florists quite different, and producing an unappreciable quality of honey. Years ago I had the phacelia of the florists, and, although only a few plants, they were eagerly visited by the bees. Notwithstanding Prof. Ball has found no record of it, there is abundant testimony as to the value of phacelia as a forage-plant in Europe. Let us hope for assistance from Washington. It just occurs to me that, years ago, Vick's catalog mentioned phacelia as a bee-plant. I don't know whether this was *tanacetifolia* or not.

"BE CAREFUL not to make the mistake of getting confectioners' sugar" for queen candy, p. 909. Please tell us, Mr. Editor, how we may be sure of getting the right kind. I have been so careful about it as to send to Medina to be sure to have nothing wrong; but how can they be sure at Medina? [In general, confectioners' sugar is brought to a finer state of pulverization than ordinary pulverized sugar. If you examine the former with a glass you will see besides the cane-sugar crystals something else, and that something else is starch. Pulverized sugar should show nothing but minute crystal cubes when examined with a glass of high magnifying power. But there is another way whereby you can detect the starch, and that is by the taste. If you can sometimes get hold of some confectioners' sugar and a sample of pulverized, taste one and then the other. You will then perceive a difference. There is, still, another difference. Confectioners' sugar has more of a tendency to lump up. While the pulverized will do so to some extent, the other will cling together in chunks that have a sort of flaky brittle feeling. You do not need to send to Medina for pulverized sugar.—Ed.]

YOU ASK, Mr. Editor, p. 888, what will be the difference between a colony tinkered by shaking so it will not have any thought of swarming, and one not tinkered up that has never thought of swarming. I don't know precisely the difference, but should say at a guess about 25 per cent. That is, the untinkered colony might store 25 per cent more than the other. Perhaps that estimate is too low—depends on the season. You ask why. I don't know, only I know

that has been my experience over and over again. One thing that ought to make a material difference in most cases is that taking away all the brood by shaking takes away just so many future workers. All of that, however, has nothing to do with the fact that shaken swarms are far and away ahead of natural swarms. [But a colony that has not been tinkered with, and won't swarm when run for comb honey, is a rarity; so that, even if we did get the 25 per cent, it is so seldom that we do get such a colony that the 25 per cent does not cut very much of a figure. Our hope, then, is in the forced swarm. But you say that taking away all the brood by shaking takes away just so many future workers. It is not true that a great many return *all* the bees hatched from the brood at a second drive to the original colony. If it can be done, then why shouldn't a forced swarm that has had two drives of bees be the equal of the untinkered colony that never thinks of swarming?—Ed.]

TEMPERATURE is a matter of immense importance, summer and winter; but don't you think you are carrying it a little too far, friend Gibbs, in drawing your conclusions, page 890? Take one instance. You say the brood-nest "is decreased in size when work is begun in the supers, simply because the temperature has been lowered in the brood-chamber," etc. That can hardly mean any thing else than that brood extends no further, because immediately above the circle of brood it is too cold. But heat rises, and it must be that it is warmer immediately over the top than at the bottom of the brood; so if the temperature controls, when the brood-nest shrinks it should shrink away from the lower part and move upward where it is warmer. How do you account for it that the brood-nest is kept near the entrance, in the coldest part of the brood-chamber? Do you really believe that, with the same temperature, an unprolific queen will lay as many eggs as a prolific one? You say, "It is a matter of temperature when queens do or do not go up into supers to lay eggs." Take a case in which brood-chamber and supers are both crammed full of bees, every thing closed but the entrance, and do you really believe it is colder up in the supers than at the place where the brood is nearest the entrance? And yet you know, and I know, that in exactly such cases the queen will have no thought of entering the supers. [Haven't you read more out of your first quotation than the actual words themselves permit? What Mr. Gibbs does mean, I think, is that comb-building in the supers requires comb-building temperature—as high as is required for actual egg-laying, for he lays considerable stress on the necessity of sufficient comb-building heat. But in order to get that heat it does not mean that the space above the brood would be cold, as you state. But the second quotation perhaps needs more modification, or, rather, I think Mr. Gibbs did not state exactly what

he meant; or if he did mean what he said, then his experience is different from yours and mine.—ED.]

I AM GLAD TO SEE, Mr. Editor, that you are not entirely satisfied with the term "shook swarms," suggesting in its place "forced swarms," p. 853. But there is the same objection to "forced" as to "artificial"—it has for years been used to apply to other than shaken swarms. Now, why not use the right word, "shaken"? The only objection is that, "to your mind" it does not suggest so strong an agitation as "shook." I sympathize with you in that, for there are some cases in which the wrong thing *sounds* better to me than the right thing. But you and I must not be guided in our use of words by what *sounds* right to us, but by what we *know* is right. To thousands the use of the word "shook" for "shaken" is exceedingly offensive, and let me assure you that "shaken" has in it just as many and as hard shakes as "shook," however it may now sound to you. Do you know of any other term that will tell exactly what is meant so well as "shaken swarms"? [But the qualifying adjective *shaken* is too narrow. "Artificial swarming" is an old term, as you say, commonly used for uniting; but the phrase "forced swarming" has been used to a very limited extent, but not enough, I think, to bar it from the kind of swarms we have been speaking about. I very much question whether the average forced swarms have been shaken. I find from my correspondence that a great number prefer *brushing*. Then there is quite a following who neither *brush* nor *shake*, but who cause the bees to rush down from the upper hive by smoking, on the Coggs shall plan of flopping a cloth. I still think we must have a general word; and if my brother-editors will help I will do all I can to introduce the term "forced swarming" to cover all kinds of artificial swarming of bees, not covered by the term uniting.—ED.]



Another cedar in God's garden falls
Amid the brambles and the weeds;
A life of threescore years and ten
Has closed, made up of loving deeds.

The November issue of the *Bee-keeper's Review* is a fine one in every respect. The general subject discussed in it will be seen by referring to the editorials in this issue of GLEANINGS. One of the very greatest improvements Mr. Hutchinson ever put on his paper is to have the type set by machine, as are our daily papers.

GAZETTE APICOLE.

A writer in the *Gazette Apicole*, in speaking of immunity from bee-stings, says an inquiry was made in 1898 by Dr. Lange in reference to certain persons being able to become indifferent to them. He gives the following results: Of 170 persons consulted, 144 were immune and 26 could not acquire immunity. Among the first, some became immune after 30 stings, others only after 100. Some persons are so naturally. Dr. Lange has been directing his efforts toward rendering beginners immune to stings, as they, from the nature of the case, suffer most. It is found that permanganate of potash will render the poison harmless. The difficulty, however, is in applying it to the poison, which, by the time a remedy can be found, is coursing its way in the blood. A few cases are given showing the effect of stings on persons of different constitutions, in France.

A man 35 years old, stung by bees, was obliged to take to his bed for a day, his temperature being 101. There was a loss of appetite; aversion to drink, and sleeplessness.

Another person, 25 years old, immediately after being stung fell into a comatose condition, with temporary loss of memory.

Another one, 32 years old, had a fever, with a temperature of 105.

Another man, 29 years old, after being stung, suffered a loss of appetite; had nausea, diarrhea, with slight delirium.

Another person, 27 years old, after being stung had a fever bringing his temperature up to 102, accompanied with vomiting, loss of appetite, extreme excitement, nightmare, and other bad symptoms.

The writer quoted says these cases show that the action of bee-poison acts principally on the nerve-centers, owing to a peculiar toxine the existence of which is not doubted, and which acts more or less strongly according to the constitution of the patient. Certain persons are so affected by stings as to shudder at the thought of them, this causing them to avoid hives. He says he saw one peculiar case, that of a man 27 years old. After recovering from the effect of some stings he said he could never again pass in front of a hive, and the thought of doing so caused him to turn pale and tremble. He saw this man later, and he admitted he had been obliged to get rid of his hives, as he could not get over the fear which came over him whenever he saw a bee. Stings are more serious on children, the effects being more prolonged, abscesses sometimes forming. When the bee leaves its sting, much if not most of the poison is still in the sac, not having been injected into the blood. If the person stung would be careful to pinch the skin tightly, if possible, below the sac, thus forcing the poison out, much trouble would be averted. But when one is stung he is very apt to give the injured part a severe brush or perhaps a blow, thus forcing the poison in deeper and deeper.



SUB-EARTH VENTILATION.

"Good morning, Mr. Doolittle. Little frosty this morning. Makes one think about getting the bees into winter quarters."

"Yes, it is quite cold this morning; but as it is still October, we shall hardly think of putting the bees in the cellar for three or four weeks yet. You did not think of putting yours in the cellar quite yet, did you, Mr. Brown?"

"No, I suppose not; but I came over to have a little talk with you about ventilation, and especially sub-earth ventilation. I was talking yesterday with an old bee-keeper, and he said that, when he used to winter bees in the cellar, some fifteen or twenty years ago, he used sub-earth ventilation with success, and advised me to do the same. But I am puzzled to know how I am to secure this in my cellar, which is on a level lot. The cellar in which I wish to winter my bees is very damp, and the building-site is on a very level piece of land. Can I get a current of air to enter the cellar by laying six-inch tile on a down-hill plan, and sink a hole five or six feet square at the outlet of this tiling?"

"The only difficulty I see in your proposed plan would be from a lack of drainage. What will there be to hinder water filling this hole whenever we have a wet spell during winter, whenever it rains or when it becomes warm enough to melt the snow?"

"I had not thought of this. Do you think it would be apt to interfere materially with the plan?"

"I do. Unless some means is provided to do away with this water it will be apt to come into the hole so as to cover the end of the tiling just at a time or the times when your sub-earth ventilation would be of the most necessity, if it were ever such, for the welfare of the bees. Then you would also have to provide some means to keep the snow from filling the hole every time the wind drifted it, as well as when it fell. This could be done with little difficulty as compared with keeping the hole free from water during wet spells."

"Do you think the plan would work all right, barring the trouble from snow and water?"

"No. There is another thing which you probably have not thought about. A sub-earth ventilator will not work unless you have some means for the warm air to escape from the top of the cellar or room containing the bees. And, even with a ventilator at the top to let the warm air out, air

will not circulate to any extent during a time when the temperature outside is the same as or warmer than that inside; and such times as these are just when you need fresh air in your cellar, if fresh air is *really* necessary, by special means, in a cellar for bees."

"Is there no way of overcoming this?"

"It is possible to do this, I believe, to some extent by so arranging that a pipe can go from near the bottom of your cellar up into the pipe from the stove which you have a fire in every day. In this way you can be sure of a draft which will change the air in your cellar any day during the winter, no matter how warm or how cold."

"But would not this ventilate too much at times when it is very cold outside?"

"It would be likely to do this; and to overcome this part you should have some means for regulating the amount of air that is to pass through, from the full amount to none at all. This can be done with something along the line of a "damper," similar to those used in stoves and pipes."

"How deep should this sub-earth ventilator be laid in the ground?"

"Deep enough so as to be low where frost will ever touch it. This will depend much on whether the surface of the ground is likely to be protected with leaves or snow. If so protected, two feet will be deep enough; but if in a bleak place where the winter winds have full sweep over the ground, from three to four feet will be necessary."

"Then how long should it be?"

"From 100 to 150 feet, or long enough so that a below-zero air entering at the outer end may be heated to near the temperature of the cellar on entering the same, thus not causing a chill over the cellar when it enters."

"I think I understand. But why did you hint once or twice along in our talk that this sub-earth ventilation might not be really necessary? The old bee-keeper I talked with was sure no cellar was properly fitted for wintering bees without it."

"I have no doubt he thought a sub-earth ventilator was really necessary. But allow me to whisper a word or two. After you have tried this sub-earth ventilator, arranged as you propose, and improved by all of the suggestions we have here talked about, for a winter or two, turning the regulator in the pipe from one to twenty times a day, you will soon find yourself turning it off or shut most of the time; and finally, unless I am greatly mistaken, you will leave it shut altogether; for all of my experience goes to prove that, where any cellar is so arranged that the temperature can be kept between 43 and 48 degrees Fahr., we need have no fears from dampness or bad air."

"What! you don't pretend to say that all special ventilation is unnecessary?"

"I was fully as enthusiastic over ventilation of all kinds for bee-cellars as it is possible for any one to be, and spent lots of

time and money in perfecting them, and still more time in looking after them, even getting up nights during extreme weather to attend to them, until through force of circumstances during one fearful storm, all were left closed for a week, at the end of which I found the bees in the best condition I had ever known them to be. This caused me to keep the ventilators closed more and more, till finally, when remodeling my beecellar some fifteen years ago, all ventilation by special means was disregarded, since which my bees have wintered better than ever before, and all of the harrassing work with ventilators has been turned into more comfortable employment which has paid me in two ways—first, by that accruing from my work at other things, but more largely by the more perfect wintering of the bees, with a less consumption of honey. But I have an appointment to meet at 10 o'clock this morning. It is now 9:45, and so I must be getting ready."

"But I shall not dare try my bees with no provisions for ventilation save that which would naturally come into the cellar."

"I would say to you as I have to many others, where any person has fears in this matter the proper way is for him to test the thing till he is satisfied."



THIS issue is largely editorial. We will give our contributors more of a show next time.

"THE flavor and grain of honey are greatly improved," says the editor of the *Review*, "by waiting until the honey begins to granulate, then stir it up and draw it off into retail packages."

IN this issue we have given considerable space to the subject of organization and co-operation for the purpose of maintaining or getting better prices on honey than now prevail. This is a subject that will bear much thought, and our columns are open for its further consideration.

THE Chicago convention will be held Dec. 3 and 4. There are indications that this will be a very large meeting. Already some of the most extensive and influential bee-keepers have promised to be in attendance, and it is confidently expected that this convention will be as large as some of the conventions of the National—yes, possibly larger than some of them. Chicago is a good meeting-point, and always has the reputation of having good conventions.

"It is expected," says Mr. York, "that all the railroads centering in Chicago will offer excursion rates at that time, on account of the National Live-stock Exposition." Those interested should ask their nearest railroad ticket agent somewhere about Nov. 25.

THE editor of the *Review* advises against putting exhibits of bee supplies in the same room in which a convention may be held, because it divides the attention, and groups of bee-keepers will be persistently gathering about the exhibition talking in an undertone, very greatly disturbing the general discussions that may be going on during the sessions of the convention. I agree with Bro. Hutchinson. A hint to those who are getting up conventions will not be amiss.

DEATH OF DR. A. B. MASON.

On Oct. 30, Dr. A. B. Mason, Secretary of the National Bee-keepers' Association, was severely burned about the face and hands by a natural-gas explosion. His son reported that he was a "very sick man" and "very weak and exhausted from the nervous shock and pain," and yet at the time his son Ellis wrote (Nov. 4) he was gaining slightly.

Since writing the foregoing, and just as we were going to press, we learn that the good doctor is no more. His daughter-in-law writes as follows:

Dear Mr. Root:—Your letter to father, written the 11th, came to us this morning, but too late for him to know any thing about it. He died this morning, at 7:55, after a long night of suffering. The nervous shock of his recent injury proved to be greater than he could bear. He will be buried on Friday afternoon, the services to be held at the home.

Thanking you for the messages of regard sent to the family, in father's letter, I remain your friend,
Toledo, O., Nov. 12. MRS. ELLIS MASON.

The Association, of which the doctor was a most active worker, has lost a valued officer and an active member. Personally I feel that a very dear friend has gone, and I can not quite bring myself to believe that the one whom we have all known so well and favorably will not be with us any more to offer us his wise counsels and genial smiles. Every one who has attended the National conventions will remember that he (with that other doctor (Dr. Miller) was the soul and wit of the meetings. Dr. Mason's biography will be placed before our readers in our next issue.

FOUL-BROOD INSPECTOR FOR MICHIGAN.

MR. JOHN M. RANKIN, a student at the Michigan Agricultural College, has resigned his position as State Inspector of Apiaries to accept another position at a better salary, and for work the year round, at the sugar-factory at Wyandot, Mich. Mr. Rankin is a young man of splendid ability, especially in the line of science. He filled the position of Inspector in a manner eminently satisfactory to the bee-keepers of Michigan. Though he retires from that position, another man, Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, has

been appointed to fill his place, and I believe has now already begun the duties of his office. These duties will not necessarily interfere with the work of publishing the *Review*, and all together the appointment is a most happy one. It is presumed that no one is more interested in bee-keeping in his State than our friend W. Z.; and, being editor of a bee journal, he will be able to disseminate information regarding foul brood, from a large experience that he will acquire, that will be not only of value to the bee-keepers of his State but the whole United States.

IDAHO FOR YOUNG MEN.

In the *Industrial and Oil Review* for Oct. 18 appears an article from Mr. Wm. Allen White, a well-known writer who has traveled extensively over the West, and who was a pioneer in the early days of the Cripple Creek district of Colorado. At that time he made a prediction regarding that portion of the State, which has been literally fulfilled in later years. The same writer now says, concerning Idaho:

"Idaho is to-day the State of greatest opportunity for young men. It has been my misfortune to have been knocking around in the West during the fore part of the present year looking for health, and I have been in every Western State and Territory but Montana and Nevada, and it seems to me that there is no other State in the Union that offers the opportunity for young men that is offered in Idaho.

"This State is a young man's State. Horace Greeley's advice, 'Go West, young man,' is not good advice to-day unless it be amended to read, 'Go to Idaho, young man.' In nearly every other State in the Union the conditions are settled. The country is developed. Here it is all new. The mines are not made. The water is not stored. The farms are not opened. The towns have hardly been started that will spring up in this State in the next twenty years. Idaho is to-day where Colorado was twenty years ago, and Kansas was just after the war. The undeveloped resources of this State are amazing to one who is used to seeing things running up to their limit."

GLEANINGS has no desire to boom any locality, province, or State, for speculative reasons; but considering the fact that so much of our country is overcrowded and overpopulated I deem it a real favor to our subscribers to point out certain States where they can take bees without encroaching upon the rights of other bee-keepers, and there are many portions of Idaho undeveloped.

Mr. White has confirmed a great deal that I have said in these columns concerning Idaho. But let me urge, as I have already done, that, if any one desires to remove from his present location, he should make a trip, going himself alone, and look over the various fields. Better stay awhile and hire out for a few months to see whether you like the locality; then when you size things up pretty thoroughly you will be in position to decide whether you can move your family.

NOMINATIONS FOR THE OFFICE OF GENERAL MANAGER.

In our last issue, in referring to this matter I did not know then that Mr. E. T. Abbott, of St. Joseph, Mo., had been an-

nounced as a candidate for General Manager or I should have mentioned his name in connection. The fact was, Mr. Herman F. Moore, in the *American Bee Journal*, some time ago, put in nomination the names of Mr. E. T. Abbott, Mr. C. P. Dadant, and Mr. R. L. Taylor as suitable persons for the office in question. I had learned, through private sources, that both Mr. Dadant and Mr. Taylor refused to make the run, but at that time I was not aware that the name of Mr. Abbott had been announced with theirs in the first place. The fact is, my time has been so taken up in the final preparation of the new edition of our A B C book, and getting out our catalog for 1903, that I have had little or no time to look over our exchanges of late, and consequently overlooked the name of Mr. Abbott. I hereby stand corrected and offer him my apologies. Mr. Dadant and Mr. Taylor having withdrawn their names, Mr. A. still remains with Mr. France.

While still believing, as stated in our last issue, that some one should be selected for General Manager (whether it be Mr. France or some equally good man, I care not who) who has been in no way connected with the recent Association complications, I will say that, if Mr. Abbott should receive a majority of votes at the coming election, GLEANINGS will do all it can to make his administration a success.

Our readers would, perhaps, like to know whether Mr. Eugene Secor will be a candidate for the office of General Manager. In a letter recently received from him he says, "It has been my intention all along, and still is, to step out at the end of the year. My annual report will so state."

THE AMOUNT OF HONEY ANNUALLY PRODUCED IN THE UNITED STATES AND IN CUBA.

At the Philadelphia convention of the National Bee-keepers' Association a few years ago I gave a set of figures going to show the approximate amount of honey annually produced in the United States. This estimate was based on the number of section boxes made and sold by all the manufacturers in the United States, for during that year we learned the entire output. Then the amount of goods sold in various parts of the country would also give something of an idea of the amount of extracted honey produced. Well, this estimate, without going into details as to how the results were arrived at, show that there was 50,000,000 lbs. of comb honey and 100,000,000 lbs. of extracted, or a total of 150,000,000 lbs. all told. The actual valuation of this, conservatively figured, would be about \$10,000,000. In answer to a correspondent in our issue for Feb. 15, page 155, I repeated these figures, and the editor of the *Pacific Bee Journal* compared them with the United States census report of the annual honey crop. He has prepared a new set of figures by putting them in such a shape

that they will be more easily understood. According to his way of figuring, my estimate of 150,000,000 lbs. of honey would make 7000 carloads. The United States census report on the same basis would make 6667 carloads, or only 333 less than my estimate. These figures are significant when we come to consider the fact that they were arrived at through totally different and independent sources—significant because they are so close together. But my estimate, as made three years ago, was figured on a very conservative basis; and the United States census report of 1899 probably did not take account of *all* the honey produced. In that, as our readers know, I have questioned the accuracy of the report. But either way we figure it, both estimates are under the actual output of honey in the United States at the present time. I think we should be safe in concluding that we may estimate that the actual product of this country is not far from 10,000 carloads. This seems like an enormous amount of honey; but if one will go through some of the large supply-manufactories of this country, and look over their order-books, he will have no occasion to doubt these figures.

The general public is dazed when it tries to take account of them, and therefore concludes that so much honey could not be honestly produced from the hive, and that, therefore, it is largely glucosed. It is evident that we ought to enter on a campaign of education. As Dr. Miller suggested in his address before the Denver convention, the National Bee-keepers' Association should find means for educating the public to the actual facts of the honey business—how the honey is produced, and the probable annual product.

Referring again to Mr. Bennett's recloth-ing of the United States census report, we copy from the *Pacific Bee Journal* his figures by States. They read as follows:

The United States Honey Report of 1899 shows California produces 170 cars of honey; Texas, 220 cars (marketed mostly at home); New York, 160 cars; Missouri, 140 cars; Iowa, 120 cars; Kentucky, 180 cars; Illinois, 135 cars; Ohio, 85 cars; Colorado, 81 cars; Arkansas, 65 cars. I have figured out the carloads at 22,000 pounds to the car. This makes 26,000-pound cars, leaving 4000 as weight of cases

THE HONEY RESOURCES OF CUBA.

It will be interesting to know that Cuba is now turning out something like 200 carloads of honey every year, notwithstanding only a very small portion of its bee locations are utilized, especially by modern bee-keepers. We learn from official sources that we consider reliable that the annual product of honey in Cuba is as stated above. What Cuba could do easily if its territory were taken up with modern bee-keeping, with its long seasons of honey-flow, no one can estimate. It is not too much to suppose that it could produce in the neighborhood of 500 carloads. California has put out in one season an amount equal to this. But probably Cuba has better and more extended honey resources than any other province,

state, or island, on this hemisphere; and I should not be at all surprised if her annual product ten years hence—well, I dare not estimate. Some of the local bee-keepers of Cuba might give me a good thrashing if I ever set foot on their fair island, so I will leave the reader to guess.

PROF. COOK ON PEAR-BLIGHT; ITS CAUSE AND CURE.

WHEN I visited the bee-keepers in the pear-blight district of Hanford, California, I looked over the situation as a representative and officer of the National Bee-keepers' Association, and I became convinced that the bee-keepers of that section had a grave problem to deal with. Profs. Pierce and Waite had both decided that the bees were responsible for spreading the blight from tree to tree, or at least had a part in it. The pear-growers in and about Hanford were in no good mood toward the bee-keepers. They threatened poison, and threatened to bring suit for damages, etc. As an officer of the Association I recommended a truce and a suspension of hostilities, during which the bee-keepers should remove the bees for experiment from a district where the blight was raging the worst. This was done. In the mean time I suggested that Profs. Cook and Gillette might possibly be interested in looking into the matter, and give their opinion of the situation. Well, in the *American Bee Journal* for Oct. 16 appears an interesting article from our friend, and he gives it as his own opinion that the bees are guilty as charged. He says:

Prof. Waite, of the Department of Agriculture—the same who did such admirable work proving that bees were a necessity in the orchard—has now done equally valuable work in showing that our bees *are* also chief agents in spreading pear-blight. Prof. Waite has proved this beyond any question. He shows that the micro-organisms which cause pear-blight can live only in a liquid or semi-liquid medium. They therefore reach only to the outside of the plant when carried by some secretion or exudation of the same. The bacteriologist has only to visit the plant with a pin-prick, and then insert the same pin into another plant to carry the disease. The tip of the stigma bears the sticky secretion whose natural function is to catch and hold the pollen. This liquid, or semi liquid, also domiciles the microbes. The bee in quest of nectar touches the stigma and bears away some of the liquid with the microbes, as it does also the pollen-grains. It then hies away to other blossoms, possibly on other trees. Here it leaves not only the pollen but also some of the bacteria. Thus the inoculation is as certain as in case of the pin prick.

Again the tender buds are protected by the thin film of liquid resin, which also attracts the bee, as it is here that it gets its propolis or bee-glue. Without doubt the microbes are also in this semi-liquid secretion; and as the bee flies to other buds for more of the resinous secretion, the inoculation is again performed, and so we understand how pear-blight spreads in the nursery-rows, and how young trees which have never blossomed may die of the blight.

This, coming from our own Prof. Cook, who has always been a friend of the bee, and who, it is presumed, would be glad to exonerate them from the serious charge if he could in all honor and honesty, to say the least is unpleasant reading. But if it is the truth, we must not conceal it nor shirk our fair share of responsibility. But Prof. Cook does not believe that the removal

of the bees from the infected district would also do away with the spread of the blight, for he says:

It only remains to be said that the moving of bees from any section, while it will work terrible mischief in preventing pollination, will probably avail not at all to lessen the pear-blight. We must remember while it takes thousands of visits of insects to pollinate the flowers of a single tree properly, less than a score are necessary to inoculate a tree thoroughly with this blight virus. There are always enough insects other than bees, not to speak of the unowned bees in rock, crevice, hollow trees, walls of houses, or even in holes in the ground, to spread the virus of the blight so abundantly that we can never hope to prevent the spread of disease by keeping the insect away. On the other hand, in case of a large orchard, where thousands of trees are often gathered in one block, it is utterly impossible to secure thorough pollination except we have apiaries in the near vicinity. I have known several cases of bees working in holes in the ground the present year. Such would seem very poor hives. Have others noticed this?

The question naturally arises, then, "If the local bee-keepers of Hanford and other infected districts can not by any procedure abate the nuisance, what is there to be done?" If the pear-blight would come anyhow without the bees, if it would spread from tree to tree by the agency of *other* insects, although not nearly so numerous, what possible good can come from persecuting the bee-keeper? Even if it be admitted that the bees themselves are almost the sole means for the transmission of the disease, then there is the stubborn fact that there are many colonies of bees in the rocks and caves that are what would be called in law *feræ naturæ*, or animals out of the jurisdiction of man, and therefore man can not be held responsible for the depredations that they may commit.

Prof. Cook, in the first quotation above given, suggests or points out a reason why young nursery stock that has never bloomed should be blighted. The virus found in the semi-liquid resinous secretion, he says, would be visited by the bees, and therefore the bees would help spread the disease. Right here, it seems to me, we lack proof. I carefully questioned the bee-keepers and pear-men in the vicinity; and so far as I can remember no one was prepared to say that bees were ever found on these young shoots—that they never saw them, in fact, except when the trees were in bloom. It was admitted, however, that ants and other insects would crawl all over them. For that reason I can not think that the bees are proven guilty as charged by Professor Cook. If it be true that other insects spread the blight on young nursery stock, it only goes to prove Prof. Cook's other statement, that the removal of the bees controlled by man would not abate the nuisance. If bees do not visit the small trees, and such young stock is blighted just as badly as the old trees, it goes to show very clearly that the same agency that scatters the disease on *young* trees (insects, not bees) can and does scatter it on the *old* trees.

Prof. Cook offers several remedies for the cure of pear-blight. He says further:

The most potent fungicide, or bacteriacide, yet discovered is the Bordeaux mixture, which consists of water holding in solution lime and copper sulphate.

The formula I usually give is one easy to remember: 4-4-45. This is easily made as follows:

Four pounds of fresh quick-lime are slaked, put in a bag, and hung in enough water to dissolve it. The copper sulphate is dissolved in the same way in other water. When dissolved they are placed together and enough water added to make forty-five gallons. This is a quick cure for many blights. It does not, however, prove effective against pear-blight. We can easily see why. The germs remain inside, almost entirely, and so are not reached by the liquid.

The second remedy for blight is the only one, which, so far as we now know, will aid us in combating this terrible disease of the pear and loquat. It is to prune and pull and burn. In case of pear and loquat blight we watch for the withered leaves, which are apt to appear soon after the resinous buds attract the bees or the flowers open their showy petals, and cut them off a generous distance below the blight as soon as they appear—the sooner the better. If we have been so vigilant as to discover the trouble at the first onset, before the microbes are carried far from the bloom, we shall have stopped the blight entirely. It is safe, in case we use our pruning-knife or shears, more than once, to disinfect them before each successive cut, by dipping in a dilute solution of carbolic acid. I hope and expect to save my pear and loquat trees by careful attention to this method. The tomato of California suffers severely from a blight. Great watchfulness and careful pulling of any vine as soon as the blighted leaves make any show, will frequently stop the blight at once, and save nearly all our vines.

Another method that is sometimes very successful in treating blight is to change the locality of the plant. The melons in some parts of California are grievously injured by bacteria that work in the crown and upper roots, causing them to rot. If we go but a short distance from where the blight destroyed the previous year and plant our vines we often will escape entirely; whereas, if we had planted on the old ground we might have lost all our plants.

We know the second remedy is good. Indeed, the largest pear-grower in the region of Hanford told me he did not believe in attributing all the mischief to the bees. He was fair enough to say that, in his opinion, the pear-growers themselves were very much to blame. They had allowed the blight to remain on the infected trees without taking any care of it. If all the growers had been careful to prune it out at the very start, he believed it might have been held in check.

And this reminds me that the large pear-growers are not the fellows who are howling "blood and thunder," "poison," and "suits for damages." It is the little fellows who have been making the noise.

ORGANIZATION AND CO-OPERATION.

MUCH is being said on this most important subject, especially in the *American Bee-keeper* and the *Bee-keeper's Review*. The editors of those papers, while admitting that perfection has nearly been reached in bee-keeping appliances and methods for producing honey, very properly ask, What are all these with a poor market, or, what is still worse, bee-keepers with all their knowledge of how to get the honey competing against each other and slaughtering prices? It has been suggested that this is a matter that the National Beekeepers' Association should take up, locate warehouses, with permanent officers, in various parts of the country, so that the members could ship their product to such warehouses with a reasonable assurance that it could be held till sold at the best price obtainable. Much has been accomplished by

organization and co-operation in some localities, notably in Colorado, where, indeed, the bee-keepers have been able to corner the market on their product.

The bee-keepers of California have been grappling with this problem, but have not been as successful as their Colorado brethren. So far no effective plan has ever materialized by which the product of the poor man as well as that of the one better fixed financially, outside of Colorado and Central New York, can be handled and disposed of at the best price obtainable. Under present conditions the poor man must market his product as soon as he gets it off the hive, and with the natural result that he sells it to the first buyer who comes along, at a price that is ruinous to the market generally. There is no need of his selling at such figures, but he has no means of knowing whether he would get a better price by holding; and even if he had such means at his command it is possible he would have to sell at once at a sacrifice in order to be able to get the ready cash. But the bee-keeper who has hundreds and possibly thousands of colonies, and who has a bank account, can afford to hold his honey until the market rises; but when all the small bee-keepers sell all around him at ruinous prices he may have to wait months and months for the market to seek its proper level again, with the possibility that it may never rise above the low-water mark. The uncertainty of what the market will be puts our more affluent friend in position where he may feel disposed to sell his honey at a sacrifice, even after he has held it for two or three months—possibly longer.

These, in fact, are the conditions that prevail at present, and both of my brother-editors show very clearly the urgent necessity, both of organization and co-operation. If, in fact, the bee-keepers of Colorado can organize and thus secure better prices for their honey, why should not we, the bee-keepers of the United States, in a larger way carry out the same principle, and thus see that the bee-keeper, whether rich or poor, is protected from the buyer who is anxious to get the lowest price possible, or the commission man, who is not over-zealous to carry out the principles of the golden rule?

Whether or not the National Bee-keepers' Association should establish warehouses at various points is a question. The Association as now organized could not very well undertake a work of this kind; and it is doubtful in my mind whether it should do so; but it might work in harmony with another organization kindred to it. For example, the bee-keepers of Colorado have what is called the Colorado State Bee-keepers' Association—an organization that has for its object the holding of conventions at certain seasons of the year. Then they have also another allied to the first one, known as the Colorado Honey-producers' Association, which has for its object the receiving of the crop of the members and

placing it on the market to be sold when the market reaches its highest notch in the mind of an expert employed by the Association.

I remember it has happened several times that a buyer has gone through Colorado attempting to break down the market established by the Association. In vain did he try to get honey at less than the ruling prices; for so well were the Colorado bee-keepers organized that he went back home almost empty-handed, and finally had to pay the price simply because the bee-keepers of Colorado were so well organized that one central head controlled the price demanded, and, of course, obtained it—not only for one man's crop, but for all the members who put their honey into the hands of the central organization.

It is possible, then, that the National Bee-keepers' Association might be affiliated with and indirectly connected with another organization which could take care of the commercial interests of bee-keepers, the same to receive their crops, properly grade them, and then dispose of the product after the market has been cornered, at a price that is not exorbitant, but which would give bee-keepers a fair living profit on the investment.

While I do not feel extremely hopeful that one central organization, national in its character, will be able to control prices, yet GLEANINGS is willing to do anything it can to help along any thing in that direction that promises success; and I join hands with my brother-editors, and wish to assure them that I stand ready to co-operate and help along any feasible and businesslike scheme.

COLORADO CONVENTION REPORT, CONTINUED FROM LAST ISSUE; PRESIDENT'S ADDRESS.

PRES. HUTCHINSON showed that modern bee culture had advanced by distinct stages. The Langstroth invention laid bare the secrets of the hive. Next followed the mechanical stage in which were brought forth hives, smokers, sections, comb foundation, and the extractor, along with minor mechanical improvements like the bee-escape. Next on the list was the methodical stage, or the development of methods and systems of management. Some of the present methods would certainly be improved upon; but he thought it was doubtful if bee-keepers would secure their crops with much less labor. But the improved methods had called for greater skill, and greater skill requires specialists. Bee-keeping had become a distinct branch of agriculture, and was largely in the hands of the specialists who owned and operated hundreds and perhaps thousands of colonies.

The next stage of development he thought would be organization and co-operation. An industry without an organization was practically helpless. Organization had saved the fruit industry of California, and right in Colorado bee-keeping would have

been robbed of its commercial charm had not organization come to the rescue. In connection with organization he would establish depots and gather statistics. While honey might not ever be higher in price it would be produced at less cost. In concluding he said, "Let us not rest until every bee-keeper from ocean to ocean has rallied under its banner, and all can co-operate as the members of one great family."

On the afternoon of the same day two papers were read; and as they were something on the same line of thought I give them here. The first was by Mr. C. A. Hatch, on the subject of "Reporting the Honey Crop; When and How it should be Done." Mr. Hatch began by saying that statistics were used for two purposes: To furnish general information as to a business or calling, for the purpose of educating the public. Second, to give useful information to those connected with the trade for commercial purposes only. This last did not need to be as elaborate and as exhaustive as the first named, and could be confined to a much shorter period of time, just at a time when the crop was being harvested. In looking over the field from Maine to California he estimated that most, if not all, the white honey of the country was produced during June and July. He argued, therefore, if we had a report for two months we should have one for the white-honey crop. There was no one who could furnish these statistical facts so well as the bee-men themselves; and where there was an organization, the information should be transmitted through the local society, to one national in its character, the last named through its secretary to give out a summary each month to all the bee-keepers, showing the ton product of the current year and the year before. For example, Colorado might produce 200 tons in June of the current year, while in the year before it might produce only 175 tons; Wisconsin 150 tons in the current year, previous year 200 tons. This kind of report was all that the buyer or seller would need, and the prices could be gauged accordingly. To know what the crop was this year was of little importance unless we also knew what the same territory produced the last or preceding season.

As to the expense, the one benefited ought in justice to foot the bill; but as that might be hard to adjust, he thought the larger or National Association should assume the cost. This society had most of the large producers as members. They could report for the smaller ones, and through the medium of postal cards information could be sent to one central head, where it could be sifted, condensed, and sent to the public.

Mr. Frank Rauehuss, Secretary of the Colorado Honey-producers' Association, responded very briefly. So far, he said, there had been no way of getting information of the general honey crop of the country except through the bee journals, and even they had not the facilities they ought to

have. As a rule, the buyer was better posted as to the actual product in the country than the producer. Buyer could go through a given locality and size up the situation—something that the average producer could not do. He therefore had him, to a certain extent, at his mercy. He went on to outline how the Association he represented for Colorado had secured statistical reports, and from the information at hand had been able to decide what the market price on their goods should be. If all the important honey States were similarly organized, such States could send in their reports to an organization like the National Bee-keepers' Association, and it, in turn, after the reports had been sifted, place the information before the bee-keepers, and buyers of the entire United States. He thought it was possible the government might be prevailed upon to do something in the matter; or it might co-operate with an aggregation of State societies. Their own State organization had sent out 400 blanks to be filled out during the past season. These were returned, and were of immense importance in determining the scarcity of honey for Colorado during the past year, and the price that should be named for the goods.

FORCED SWARMS.

Have They the Energy of Natural Swarms? the Use and Abuse of Foundation for Forced Swarms; Drone Comb, when Built; When to "Make" Swarms.

BY R. C. AIKIN.

I have been reading all I find on the subject of forced swarms, and now will give my opinion. However, let me first say in regard to the name, why say shook or brushed or jounced, or any thing but simply *forced*? It matters not by what method the bees are gotten from the parent hive. Besides the above methods, they may be and often are driven, but always are a forced swarm.

That forced swarming is practical I fully believe, and this will not be the first and only time I have put myself on record as favoring such practice, though I do not take time to hunt up the times and places I have advocated this doctrine. During all my apicultural life I have practiced trying to prevent swarming; and if over 25 years of effort in that line will not give a man some ideas on the subject he must be dull indeed.

I will confess that forced swarming has not been practiced by me as a set rule or method; but that I have made very many such swarms, no one can dispute. I suppose there has scarcely been a year for the past 25 when I have not made some forced swarms—some years very few, and others quite a good many. My aim has always been to have very strong colonies for surplus work, and such practice gets the colonies into such a condition that they want to

swarm. To prevent swarming I have resorted to some pretty radical measures, such as taking away brood and leaving dry or broodless combs; shaking the bees from strong colonies into weak ones; unqueening and other plans, and sometimes hiving on starters. I say I have never had a set rule to make forced swarms, for there are rarely any two years alike, and sometimes swarming can be controlled with but little trouble by some more simple procedure. This year I had planned to make forced swarms of a hundred or more colonies by taking away all their brood and honey, taking *all* combs and giving starters. I thought to let them work as long as they would without swarming; but when they commenced swarming, make the change. Well, either two or three swarms issued from about 125 colonies. That ended swarming, but I did change the most of them to starters.

Usually I have managed most of my stock on movable combs to have fair control of swarming without making a complete change, but I am constantly getting bees in boxes, or in regular hives with crooked combs, and worse off than if in plain boxes; and these it has been my custom to drive and hive as swarms, often putting two or three of these forced swarms into one when they were small, and thus it comes that I have had quite a little experience along these lines; yet I can not say I have made the practice a regular system.

The question has often been raised as to whether these forced swarms work with the same vigor as do natural ones—a question that is perfectly proper. My reply is, that forced swarms made without intelligence, and in a haphazard way, will not work with the same vigor as the natural swarm, yet may be made to come very close to it. Much depends on conditions. A swarm made just at the beginning of a honey-flow, when every bee is fresh and full of vim, will, when they get to the fields and find nectar, get down to business; and, once started, will put in their best licks. The natural swarm has gone out of its own accord, and clustered, and the hiving does not bring about any unnatural condition, and they proceed to work. Make a forced swarm from a colony in prime or good condition; and, if hived comfortably and in a suitable place to work, there is very little difference from the natural way. Every natural swarm loses time when it swarms, so does the forced one.

Admit that the force method will not be attended with quite the same vigor, which is true, yet this fact remains: That the master controls the situation, and brings his business to a system that can not be attained where swarming is allowed. It enables the apiarist to plan his work and work to the plan, and he can care for so much more stock that he will have much more profit in the end. We may just as well advocate letting our domestic stock of all kinds follow nature as to say the bee shall. Swarming season with me lasts about two or three

weeks; and if I have five yards, that means about ten weeks I must have helpers to watch for swarms. I leave each apiarist to say what that labor will cost; and when it is done they won't have any more honey than can be had when the apiarist puts his bees into proper shape to accomplish what he wants when the time is right to get the desired results.

It is not nature to take brood or bees (bees usually give best results) to a very weak colony in the spring to help them get started, when for any reason the colony is too weak to make a start for itself; nor is it nature to give weak colonies brood later on to help to a profitable degree of population, yet these things are practiced with profit. I recall an instance where a man had in the spring 300 colonies when the honey season came, but they were not up to his standard of strength to get good results in honey, so he went through the whole lot and made 200 working colonies out of the 300, putting the brood and most of the bees from each third colony into its two neighbors, and taking the third one to a new stand. The result was a fair crop of surplus where others all about failed. We must have bees and in the proper numbers and conditions at the right time if we are to obtain results; and if the bees do not come up to requirements when they ought to, to make the results, we must make conditions ourselves.

That natural swarming does not by any means meet conditions to get best results is a fact too commonly known to admit of or need argument to establish; and since it is so we must take the bull by the horns and force conditions. Where but few bees are kept, and it is convenient to watch for swarms and hive them, good results may be had by hiving the swarm on the old stand and giving the super to the swarm; but when we can not, without a sacrifice, watch for and care for swarms, then it is best always to take some other plan. The bees must be controlled, and *made* to do that which we wish—that is, when there is any thing to do with. We can not make the honey flow, but we can do much toward getting strong colonies; and, having the bees, we can do much toward getting them to do good work.

It is a fact that the colony that is in swarming strength is likely to swarm just when it ought to bend every energy toward honey-gathering, and ordinarily it will swarm just at such time. The master may and can get as good average results by managing to suit himself, and here is what to do: Give the bees plenty of room, or do that which will keep them from all notion of swarming until the flow is at hand, then remove all brood and combs, and allow them to start from starters in a small brood-chamber. Make them start just as a swarm would have to do if hived on starters. If you take away part of the combs and give starters you can get a fine lot of drone comb. It will also do to hive on dry combs in most locations where the flow is short, or on full

sheets of foundation if wired sufficiently to prevent breakage. Ordinarily I consider it unprofitable to use foundation, perhaps nearly always except with *very rapid flows*; and if full combs are used instead there ought *always* to be a very strong swarm hived on the combs so they will be sure to enter the supers. Observe this rule: Always have strong swarms, and the more comb or foundation in the brood-chamber, the more bees should be piled into the hive.

If the swarms are to build from starters, each queen should be either young or in her prime and vigor; if not, there will be an undue amount of drone-comb built. Swarms, whether natural or forced, will build *some* drone comb that must be culled out, but usually not much drone brood is reared the first year, and such comb can be removed the next spring before being used.

Some advocate making the swarm when the colony is already preparing to swarm, but I must surely say *no* to that proposition. Do not let the swarming fever come on at all if possible to prevent (and it is possible); and when the season is ripe for the work, do it and produce a condition that is adverse to swarming. If anybody will put down a carload of bees in Loveland just in time for me to *make* swarms, and hive them just as my flow begins, I will guarantee that 49 out of 50 having vigorous queens will go to work and give a good account of themselves if each has bees of all ages and plenty of fielders.

Loveland, Col. *wdc*

[Nearly all the writers so far who have referred to the question of drone comb being built with a forced swarm, emphasize the importance of *young* queens. The fact that all the testimony seems to be to the same effect goes to show that the excess of drone comb can be largely avoided, and at the same time the foundation bill can be cut down very materially.—ED.]

PEAR-BLIGHT.

Additional Proof that, by Proper Management, Pear-blight Can be, to a Great Extent, Prevented.

BY J. E. JOHNSON.

I wish to thank Mr. Gray, who criticised my statements in GLEANINGS for Oct. 15. It is, no doubt, discouraging for any one to plant and care for an orchard and then have it ruined by blight. Before I planted a commercial orchard I read every thing I could find on pear culture, and asked many questions through different papers, some being answered by professors in horticulture. I also visited many orchards, large and small.

Some growers said that, if I had never planted a Bartlett, Idaho, or Leconte, I would never have been bothered with the blight, or at least not so soon. I arrived at these conclusions:

1. That pear-blight is a contagious disease, and when once started in an orchard

it will spread if not cut out very promptly. 2. That it is a disease of the sap, and that lots of supposed blight is death to the tree only from overbearing and other causes.

Pear-trees are rapid growers, and the wood is very sappy. If I cut off a limb from any healthy pear-tree in June or July, and lay it in the sun, it will turn nearly coal-black, so that even experienced pear-growers would say blight when there was no blight.

When I said I planted only such varieties as are not subject to blight I did not mean that they were entirely proof against the disease, as you will see if you read further, Sept. 15th issue. I also said Kieffer, Garber, Dutchess, etc; and the "etc." seems to have been left off in printing. I have also Lincoln and some others, but did not wish to confuse a beginner with too many varieties, as I considered these three the best. I found where Kieffers blighted on clay land. They had nearly always been heavily fertilized, and from many other observations which are too long to discuss here I finally decided that, if I planted only such varieties on high clay land as are not so apt to blight, give them no manure, nor cultivate late in the season, and not plant any varieties that are bad blighters, I should not get the blight started; or if it did start, I could control it better. So far my orchard proves I am right.

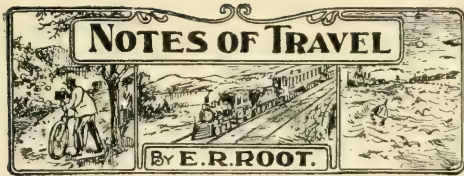
This has been the worst year for blight I have ever seen; but I have to-day examined my orchard of 900 trees, and now make this offer if Mr. Gray doubts statements concerning it: I will deposit money in the bank at Williamsfield, sufficient to pay his fare to and from that place, meet him at the station, and show him my orchard; and if he can find one single twig on any of my 900 trees blighted, then I will pay all his expenses; but if he finds them all entirely free from blight, then he pays his own expenses. I can also take him to an orchard of several hundred trees only a mile from Williamsfield, on rich black soil, nearly ruined this year by blight. I make this offer in good faith.

Many have made the mistake of planting all kinds at high prices—among them a few Lecontes or Bartletts, which started blight and gave it to others. I got nearly all my trees of Stark Brothers, Louisiana, Mo., at from 7 to 15 cents each. I plant only one-year two-foot trees, as they will, I believe, make healthier trees than larger ones.

Prof. Cook would, no doubt, consider Mr. Gray and myself both wild, as he says bees spread blight. Possibly they do; but if we had not bees or other insects we could not raise pears successfully. I say, "Why blame the bees?"

I did not wrap a single tree last winter, and did not have one hurt by rabbits. I paint with Otwell's tree-paint. Although rabbits are numerous I shall not wrap a single tree this winter. I do not believe in planting large trees except apple.

Williamsfield, Ill.



WESTERN COLORADO; IRRIGATION SCHEMES; POSSIBILITY OF RECLAIMING LANDS NOW DESERT, THROUGH STATE AND GOVERNMENT AID; BEE-KEEPING ON THE MESAS; SWEET CLOVER ON ALKALI LANDS; WESTERN COLORADO AS A BEE COUNTRY.

Leaving Salt Lake City we take the train for Grand Junction. I will not stop to say much about the beautiful scenery—scenery that can never be adequately represented with pen or camera. I will only state that the beautiful panoramic changes as one goes through those canyons and gorges is enough to fill him with wonderment at the awful upheaval of nature that must have taken place some time, nobody knows when.

Arriving at Grand Junction we naturally turn our thoughts toward the Hardy Brothers, who seem to be the headquarters for bee-keepers' supplies. As this part of the trip was along at the tail end of my journey, I found myself greatly handicapped for want of time. But I stopped long

enough to learn that there were thousands and thousands of acres of good land that will be irrigated, and which will grow alfalfa. While the vicinity had all the bee-keepers it could possibly support at the time of my visit, yet the time will doubtless come—yes, is *sure* to come—when the territory growing alfalfa will be greatly increased; then there will be more bee-keepers to find homes, health, and life itself. But the time has not yet come. But one of the leading bee-keepers of Colorado lives in the vicinity of Grand Junction. He is known there as Mr. J. U. Harris, ex-president of the Colorado State Bee-keepers' Association. He is not only an expert bee-keeper but a man of affairs, and one concerning whom we shall hear more later.

Again we take the train, going through more mountain scenery—more awful upheavals of granite—and finally land at Delta, another great bee-keeping center, one of the very best I have ever visited; but, like Grand Junction, its territory for available bee-keeping has long since been taken up, and there will not be more until the State and general government has put in some gigantic irrigation schemes now under consideration. At the time of my visit it was reported to me that there were something like 200,000 acres that would be available for cultivation. Out of this number about 135,000 acres was deeded land.



ONE OF JOHN A. HARRIS' OUT-APIARIES, DELTA, COL.

Only about 35,000 acres of it is now under cultivation.

The general plan of opening up this country was to put it in the hands of a board of control, of which Mr. F. E. Dodge, at Delta, is the corresponding secretary and treasurer. At the time of my visit there were something like 100,000 men at work in the ditches. One ditch was 36 miles long and the other 31. These ditches, when completed, would make available for cultivation something like 50,000 acres, all of which was in Delta Co. There are other portions of Western Colorado that will be opened up in like manner. Any one interested can correspond with Mr. Dodge as above.

Let me say right here, as I have said from time to time, I am in no way interested in any land speculation; but I am anxious to help our brother bee-keepers who desire to find new territory not occupied already. The region round about Delta and Grand Junction is a fruit country; and so long as one does not encroach on the territory of another, he has a right to avail himself of land now being opened up for cultivation.

I met at Delta Mr. Nelson, of the Delta Fruit and Produce Co., who are also local dealers in supplies in that region; and here I subsequently met Mr. J. A. Harris, the most extensive bee-keeper in that locality. He came originally from the eastern part of the State, starting about three years ago with about a hundred colonies, and paying \$200 of borrowed money for them. He located in the valleys and on the mesas

in the region of Delta. From this investment of \$200 he secured about \$900 the first year; paid back the \$200 which he had borrowed, for he had not a cent when he came on that side of the Rockies; and with what he could save he bought more bees until he had 350 colonies. From these he took \$2300 in clean cash the next year. From the proceeds of this \$2300 he purchased bees until he had 950 colonies. At the time of my visit he had several yards, and was carrying on bee-keeping on an extensive scale. I was convinced from what I saw of him, that, while he had a good locality, he was also an exceptionally good bee-keeper.

The land on the mesas had originally been put into alfalfa; but the alkali due to irrigation had forced its way up through the soil, killing off the plant to a great extent; but sweet clover had, strangely enough, come in and taken its place. In the vicinity of one of Mr. Harris' yards there were hundreds and hundreds of acres of sweet clover as well as bunches of alfalfa that had not been killed out by the alkali in the soil. The land had been abandoned for purposes of agriculture, and would grow at that time nothing but sweet clover and scattering bunches of alfalfa.

When I visited Mr. Harris his comb-honey colonies had four and five supers on, and were still gathering honey from the alfalfa and sweet clover referred to. But the principal feature of this locality was that the alkali, having pushed up through the soil, had rendered it unfit for agricultural purposes; and consequently the alfalfa, where it could exist at all, would



JOHN A. HARRIS AND FAMILY, FORMERLY OF DELTA, COL.

bloom the entire season, and likewise sweet-clover. This very land that had been sold at high prices was now comparatively worthless except for bees.

But the seasons in later years have not, apparently, been as good. Last year, in this very locality, I understand the crop was very poor. In the mean time Mr. Harris has sold out and gone for better pasturage. I have also since learned that the locality is quite thoroughly overstocked, and that bee-keeping now is not the bonanza it once was. But if the great irrigation schemes now materializing develop, there will be a chance for more bees and more bee-keepers—but, mind you, not in localities now under cultivation.

I called at one of the outyards in the absence of the proprietor, Mr. Harris. In the extracting-house I heard a whirring of an extractor, and, going inside, I found a young lady busy at work. She was about as much frustrated as I. After stammering out an apology for my intrusion, and telling who I was, I begged the privilege of taking a photo of the bee-yard, which was granted, and which is shown in one of the illustrations accompanying. She was not prepared to receive company, much less a kodak fiend, and I did not volunteer to take her picture, as I well knew the request might be refused; but the next day, on visiting Mr. Harris and his family at his home, I secured a picture of the whole family, including the young lady before mentioned. Mr. and Mrs. Harris stand in the center of the group. The young man at the right was one of the helpers in the yard, and the young lady before mentioned is a sister of Mrs. Harris and of Mr. Harry Crawford, a bee-keeper well known on this side of the Rockies. But I think I will not tell her name, as she might be the recipient of numerous letters, as was one other young lady whose picture I gave in GLEANINGS, and I will only say this: Neither she nor any of the persons shown in the picture are now in Delta. Some time ago we showed in these columns a picture of Mrs. Harris and one of the yards which she was operating herself, and it is entirely possible that Mr. Harris' success as a bee-keeper is due in large part to his better half.

But I must not forget to refer to a dog that interested me greatly—half coyote and half shepherd, and as intelligent as any animal I ever saw. He seemed to think he was the special guardian; and when Mrs. Harris was left at home alone on the mesas this dog was the equal of any man. Naturally suspicious, he showed his coyote qualities by reminding me that I had better not presume too much on his good nature. I essayed to take a picture of him; and as I did so he lopped his ears as much as to say, "I do not know what kind of a gun you have there, but you better not try that again," and I didn't. You will readily see his ears are lopped, and that I am given fair warning to look out.

But one thing interested me greatly in

this country, and that was the mesas. These are elevated table-lands anywhere from 200 to 300 feet above the valleys, in the immediate vicinity. On some of the mesas the land is fertile, and fruit-growing is one of the specialties. Indeed, Delta is recog-



THE COYOTE SHEPHERD THAT OBJECTED TO HAVING HIS PICTURE TAKEN.

nized as one of the great fruit-growing regions of Western Colorado, and it is on these mesas that the fruit is grown largely. The trees themselves are not so much affected by soil containing alkali as are some other farm crops.



TO GET A COLONY OUT OF A BEE-TREE WITHOUT CUTTING THE TREE.

There is a man here who had a swarm of bees alight in one of his big maple-trees, about 60 feet from the ground. There are plenty of limbs on the tree, and he said he would not have it cut down for all the bees in the county, as it stands right in his dooryard.

He asked me if there was any way by which I could rig up a hive or super in the tree to get some of the surplus honey. I told him I did not know, as the hole where the bees come out is about two inches in diameter, and the bees are in the main part of the tree.

I do not care how much work there is to it, even if I have to make a special hive.

The man said if I could rig up something to get the honey I could have it, and I should like your idea of it. I should like to get ready to try it next summer.

C. MAC DONOUGH, JR.

Shokan, N. Y., Sept. 22.

[There is no way of getting the bees that I know of except to cut the tree, or the limb where they are located. You might be able to smoke them out; but the probabilities are you would kill the bees before they would leave their quarters. You could trap all the flying bees out with a bee-escape; but in that case you would have to take them to an entirely new location, two miles or so away, or hang a hive with combs near the entrance to catch the returning bees. Taking it all in all, the bees would probably have to be left in their quarters.—ED.]

WIRING FRAMES.

I am wiring all my frames. This summer I tried a new way by which I could save a good deal of time. Instead of piercing the frames I made four cuts with a fine saw on the side of the end-bars, sawing as far as the middle, as shown. I tried both ways of passing the wires, and on a set of eight frames I saved three minutes over the way of using pierced frames. Besides being able to pass the wire in a much shorter time, there is the further advantage of having no kinks in the wire, which often result in breaking it.

Would it not be a good plan to try some of them? To me they seem to be as strong as the pierced ones. The few that I tried had the cuts all filled with propolis at the end of the season.

GUSTAVE GROSS.

Lake Mills, Wis., Sept. 22.

[We have tried your method of wiring, but it weakens the ends of the frames to such an extent that you lose a great part of the advantage that you expect to gain by having good strong stiff combs.—ED.]

A REASON WHY QUEENS SOMETIMES FAIL; THE 4x5 SECTION IN ENGLAND.

One friend to whom I sent four Doolittle queens (after introduction) found them useless in a week or two. Microscopist's report showed the spermatheca full of spermatozoa, but the ovaries destitute of eggs. I do not attribute this to the cell-cup method of producing queens, but to the season. I reason it out this way: The queen has traveled, and is now impatient to use her egg-laying powers; no honey coming in, bees

neglect to feed the queen. Result, exhaustion and death of queen. Is this the secret of so many failures? In my travels as expert there are many stocks queenless this year.

Our English press is opposed to the new 4x5x1 $\frac{1}{2}$, but they are far ahead of the old 4 $\frac{1}{4}$ x4 $\frac{1}{4}$ beeway. I use the 4x5 in frames. Result, splendid sections easy to handle.

J. GRAY.

Papcastle, Cockermouth, Cumberland, Eng., Sept. 22.

[The English bee-keeper is more conservative than the American; but we have positive information that many of them are taking hold of the 4 x 5 section.—ED.]

A mistake occurs in my article on page 848, top of second column. It is made to read, "I use *mine* in an eight-frame hive." It should read, "I use *nine* in an eight-frame hive."

H. R. BOARDMAN.

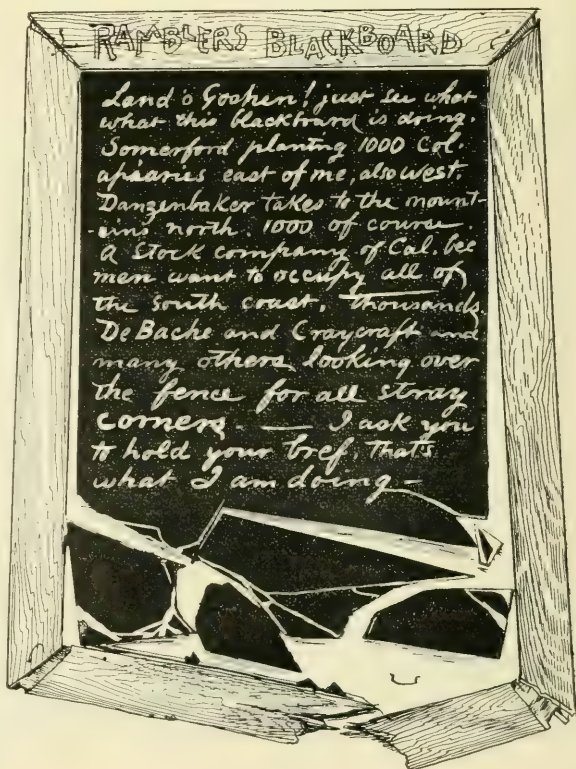
East Townsend, O., Oct. 28.

In *Farm and Ranch* several have reported treating pear-blight with salt, and say it is a sure cure. They scatter from one to two quarts on the ground under the limbs.

L. C. ROUSSEAU.

Waxahachie, Tex., Oct. 27.

[I doubt very much whether salt would have any effect on pear-blight.—ED.]



EATING BOILED HONEY.

People who can not eat honey raw can do so by bringing it slowly to a boil, then cooling. I mention this because I never saw it mentioned in a bee journal, and I am one who has suffered a good deal by experimenting in trying to eat honey.

I accidentally found I could eat boiled honey, and I eat as much as two large tablespoonfuls at a meal. I am so glad that I wanted others to know of it.

LOUIS LAMKIN.

Sioux City, Ia., Sept. 22.

[This fact is interesting and valuable. We should like to hear from others who have had difficulty in eating raw honey, and whether or not bringing it to a boil makes it assimilable to delicate stomachs.—ED.]

YELLOW BEES TURNING BLACK, AND WHY.

I want to requeen a colony whose queen was a nice yellow one, and raised bees that were nearly all yellow, but which have commenced to show considerable black; in fact, some are nearly all black. I have looked into the hive thinking they had probably superseded the old mother, but found her there with her wings clipped as usual, and could not find another, although she might be there for all that. Before I put in the new queen I shall certainly look again to make sure. I hope you can give me some explanation of this.

W. H. AMISS.

Washington, D. C., Sept. 18.

[If the old queen is clipped, and her bees heretofore have been yellow, without any blacks among them, I should conclude that she must have a daughter in the hive mated, which is the mother of those black bees. It is not an uncommon thing, after a queen has done duty for two years, to find a young queen in the hive at the same time, both laying side by side. I think you had better look again, and see if you can not find the second queen.—ED.]

STINGLESS BEES; SOME OF THE CRUDE WAYS IN WHICH BEES WERE KEPT IN BRITISH HONDURAS.

Bee-keeping here was known as far back as the history of the colony, but, of course, in a very crude way. The bees were not thrown into boxes to build their combs, but were kept in the logs in which they first built, the honey being drawn at intervals by probing into the log with a sharpened stick. The interior of the native hive, or log, consists of rows of galleries, the pillars of these galleries being filled with honey and pollen. They build cells in the center of these galleries, which are used only for breeding purposes. The yield of these hives is hardly half a gallon per log. If the hives are disturbed the bees pour out from these galleries like an army of soldiers ready to defend their camp. After close study and observation you find that

the bees build in this form because it is easy for defensive purposes, as they are stingless. The bees are of various sizes and colors, and named as follows:

1. The big bees which are of two colors, yellow and gray.

2. A big black bee which is about the size of an Italian drone. The pollen-baskets and honey-sacs of this bee can justly be styled tremendous. The name of this bee is unknown.

3. A little black bee called the cymbra, which is even smaller than a common housefly. These are hardy workers, and will build in holes in brick walls or old lumber. At the entrance to their hives they build a shute of about three inches long and two inches in circumference.

4. A green bee which is called a "Mexican," from its color. This bee builds in a log.

There are several other stingless bees, but they are hardly worthy of mention.

There is only one bee that stings—a red one called akybra. It builds its combs in trees, the cells being similar to those of the Italian bee in shape. It is a savage when disturbed, and people seldom bother it.

HERBERT GAHNE.

Belize, Central America, Feb. 13.

SWEET CLOVER; HANDLES ON THE SIDES OF THE HIVE.

1. Dr. Gandy advises raising sweet clover for bees, and cutting it for hay. Can the blossoms be left to mature the honey crop, and the plant still be tender enough for hay?

2. Since the bees are sometimes crawling all over the front of the hive, especially when they are being divided, why are not the handles placed in the sides of your hives instead of the ends?

CARRIE E. STEWART.

Elkin, Pa., Sept. 22.

[1. Sweet clover, in order to make satisfactory hay, should be cut when it is quite young, or before it is in bloom. If the plant is left until there is no honey in the blossoms, and the blossoms have gone to seed, it will be too tough and woody to make very good hay; but in the absence of any thing else stock would possibly eat it.

2. We furnish one pair of handles with each hive. There is nothing to prevent any one who receives them in the flat from nailing the handles on the sides instead of the front and rear if he so prefers. We prefer the front, as it is harder to lift a hive with the handles at the sides than to lift one by the ends.—ED.]

THE IMPORTANCE OF FEEDING TO GET THE BEES KINDLY DISPOSED TO AN INTRODUCED QUEEN.

Last week I received three queens from Mr. York, which I introduced successfully in the following way: I caught the queens at the hives which I wished to requeen,

blew a little smoke over the tops of the brood-frames, put on the cover quickly, and then smoked them quite profusely at the entrance. I next opened the queen-cage, smoked it, and killed the escort bees one by one as they came out. After letting the queen walk in at the entrance I sent four or five puffs of smoke after her and closed the entrance to within one inch.

Those colonies contained eggs and brood in all stages. They had been fed for several days previously on warm sugar and honey syrup. This seemed to absorb their entire attention, and hence they were more kindly disposed to the new mother.

I believe there is a world of wisdom in feeding a colony a day or two previously, and at the same time when a queen is to be introduced, especially if there is no honey coming in. J. W. JOHNSON.

Davis, Ill., Oct. 6.

SUGAR-BEET A REMEDY FOR GROUND TOO RICH IN ALKALI; FOUL BROOD IN STOCKTON, CAL.

I notice in GLEANINGS for Sept. 1 a few lines about alkali in soils, and how to get it out. I would say that the farmers near and around Oxnard, Ventura Co., think the sugar-beet takes most of the alkali out of the ground in a few years; but sugar-beets are hard on land. This might not do where alkali is very strong or no market for the beets.

Bee-keepers near Stockton should look out for foul brood. Out of 100 hives shipped from there in 1901, only 7 never developed it. The foul-brood inspector of Ventura Co. saw one of these diseased colonies. Many bee-keepers know of this and at Stockton. E. ARCHIBALD.

Los Angeles, Cal., Sept. 8.

WINTERING IN CELLAR.

How do you put hives in cellar when bottoms are nailed? F. B. CAVANAGH.

Galt, Michigan, Nov. 5.

[If bottom-boards are nailed fast and cannot readily be separated from the hive proper, of course the hives would have to be put in bottom boards and all. Bees can be wintered in a cellar with the old-fashioned narrow entrance, but entrance must be kept clear by cleaning out from time to time with a hooked wire. Much better results may be secured if you arrange your bottom-boards so that they can be loosened from the hive about an inch. A far better arrangement for fastening the bottom-boards to hives is a double-pointed tack or staple that is driven in from the side, one point into the bottom edge of the hive, and the other point the side rail of the bottom-board. Four such staples, two on each side, will secure bottom-board strong enough for all practical purposes. Then if it is thought necessary to take the bottom-board off, a screwdriver will easily loosen and remove

the staples so that the bottom-board can be free. The principal advantage in wintering indoors with a wide entrance or in a hive without any bottom-board at all, is in giving the bees plenty of ventilation and a chance for the dead ones to drop away free from the brood-frames without obstructing that ventilation.—ED.]

TAXES; LAYING IN THE FALL, ETC.

1. Could you tell me what the taxes and insurance would be on 22 hives?

2. I notice that the majority of my queens have already ceased laying, in spite of continual feeding. Could I arouse them once more this fall, and how?

3. I see in GLEANINGS, that you contemplate improving a good many things soon. What would be the matter with cleated followers, same size and style as ordinary followers, only made with cleats like an ordinary fence.

In preparing for a forced swarm the brood-frame which has the queen is hung in the new swarm to keep pollen below. Between this frame and the ones with only starters we must have the slotted or cleated followers to prevent all new combs from bulging. B. NAF.

Cleveland, O., Oct. 24.

1. Bees in this State (Ohio) are ordinarily listed at about \$2.00 per colony. If the tax rate in Cleveland is 3 cents on the dollar, the amount you would have to pay per colony would be 6 cents. As to insurance against fire, that would all depend upon whether the insurance agent would take them. The rate would be somewhere about 2 per cent on the actual valuation of the bees. If the hives were put in at \$5.00, the amount you would have to pay would be somewhere about 10 cents on the basis of 2 per cent. It is very seldom that bees are insured. We do not, neither do we advise it.

2. Queens almost invariably in the average normal colony cease laying in the fall. If the weather is getting cool you would not be likely to induce them to begin laying, no matter how much you feed them. Unless bees actually need stores, better not feed. It is desirable not to have brood-rearing at this time of the year in the Northern States.

3. A follower could be made on the style of a general fence; that is, a sort of a slatted separator. The only use it would have would be in connection with forced swarms, such as you suggest. For all other purposes the solid board follower would be preferable, as it would be warmer.

VENTILATING BEE CELLARS; SIZE AND CONSTRUCTION OF VENTILATORS.

I have had some experience in wintering bees in a cold climate, and I thought I would ask your advice on ventilation for a bee-cellar. I wintered about 80 colonies last winter in a new cellar made especially for that purpose. If I am able to take in

the situation the ventilation was not sufficient, though I had a ventilator 6 inches in diameter connected to the stove-pipe in the bee-room over the cellar. In very cold weather I had to resort to artificial heat in the cellar, and I soon discovered that a coal-oil lamp made the condition of air in cellar worse; as the lamp burned dimmer and dimmer, and the bees became more restless, I kept fire in the room over the cellar; and as the conditions became desperate I opened a trapdoor down into the cellar. Although this was better in every way, things are not yet entirely satisfactory.

The cellar is 17×13×6. I have 93 colonies to winter. I am now considering the advisability of getting a blower something like the thrashers use in blowing straw on the stack, and pipe it into cellar. As often as necessary, I could force warm air from the room above into the cellar, sufficient to force the bad air up and out through the ventilating-pipe. This would accomplish two objects at once: ventilate, and raise temperature to the desired degree. (I aim to keep it about 45 degrees.) This is to some extent new, but I believe it is practical. If you deem it of sufficient importance let me hear from you.

DAVID A. PIDGEON.

New Providence, Ia., Nov. 3.

[As you may surmise, a 6-inch ventilator was hardly large enough. T. F. Bingham has a cellar a good deal like yours, and he thinks a ventilator 16 to 17 inches square none too large. Indeed, in a recent article in the *Bee-keeper's Review* he says he has put in two such ventilators, the two being used in warm weather when it is difficult to keep the bees quiet. This ventilator should extend up through the roof, down through the ceiling in the cellar, but it should not reach clear down to within a foot or two of the bottom, as some advise. Mr. Bingham finds better results are secured by having ventilator stop at the ceiling. I certainly would recommend you to put in one such ventilator if you desire to keep bees quiet. In very cold weather you can, if you desire, contract this ventilator down so as to let in just sufficient air to give the requisite temperature and ventilation. Ed.]

SUPPLYING NEW QUEENS IN THE FALL.

Would you deem it advisable to give new queens now? I have but three colonies, one Italian and two black. My Italians have done well. A two-frame nucleus, Aug. 28, has six good frames now, some hatching the second time. When would you think it safe to feed for spring brood?

L. W. ANGUS.

Live Oak, Fla., Oct. 20.

[In your locality, now is the best time of the year to supply new queens, for I take it there is no honey-flow now, and you could very readily make the change without any particular interruption to the colony. I would not advise feeding until January or

February, or until such time as your bees begin to gather pollen.—Ed.]

SWARMING IN AN OUT-APIARY.

1. When bees are about to swarm in an out-apiary, and there is danger of losing a swarm, would it be advisable and practicable to put on entrance-guards to keep the queen from going out?

2. What is the best way to increase?

GEO. P. BRADFORD.

Oregon City, Oregon, Oct. 22.

[Yes, unless the queen's wings are clipped. Indeed, it is the common practice to use entrance-guards; but perhaps a better plan would be to shake or brush the bees, making a forced swarm, thus breaking up all idea of natural increase, if possible.

I would recommend forced swarming. Put the parent colony on a new location, and let it develop into a strong working colony as soon as it will, under ordinary conditions.—Ed.]

SAWED-OFF TOP-BARS; THIN TOP-BARS.

We don't want the cut-off top-bar frame. There is nothing to handle them by. Can you handle heavy extracting-frames (shaking them hard enough to get off the bees) by the "intersection of top-bar and end-bar"? I can't do it; but with the long top-bar it is easy to handle them by the top-bar projections.

In GLEANINGS for Jan. 15, W. C. Gathright speaks in favor of the thin top ($\frac{3}{8}$ in.) Hoffman frame, saying that they don't sag; but I used them two years, and found them worthless for extracting-combs, as they would sag worse than any other frame that I have used.

E. F. ATWATER.

Meridian, Idaho.

[We recognize the fact that there are those who do not like shortened top-bars, but we have thousands of customers who would never think of going back to the long ones, especially used in connection with Hoffman ends. A good deal depends on what one has become accustomed to. It is not necessary to handle frames by the projection. Hoffman frames—in fact, all frames with shortened top-bars—should be handled by that portion of the top-bar just inside the end bar, at which point one can get a secure hold, and for every purpose we consider it more feasible and practicable to handle frames in that way. We know there are those who differ with us in this respect; but after one becomes accustomed to handling frames by the corners rather than projections, he will see no necessity of handling them in the old way; and the shortened top-bars have decided advantages over the long ones in freedom and rapidity of handling while in the hives.

I quite agree with you in regard to the use of thin top-bars, and I can not see why any one should favor their use any more than I can understand why you should prefer to use the long-eared top-bars.—Ed.]



Woe unto him that giveth his neighbor drink, that putteth thy bottle to him, and maketh him drunken also, that thou mayest look on their nakedness.—HAB. 2:15.

¶ Within half a mile of our cabin in the woods they are building a railroad. The laborers are mostly Italians. They work in gangs, and are quite clannish. Three or four weeks ago, one Saturday night after they had got their pay they went to a saloon in Sutton's Bay, eight miles from our home, and purchased five kegs of beer. When the beer was brought among the crowd the men were all on friendly terms; in fact, they are so exceedingly friendly that it is said one of the crowd will never testify against any of the others, no matter what happens. Well, when the sun rose Sunday morning it fell on the corpses of two of the gang, stone dead; and a third one was so nearly dead it was doubtful whether he could live. This was the direct fruit of the five kegs of beer. Friends who had no grudge or spite against each other before they got the beer became at once bitter enemies. One man killed another in the fight; and a brother of the dead man, after the fashion of heathen nations, proceeded to avenge his brother's death, and was nearly killed himself. People saw them carrying the kegs down to their camp, in broad daylight. I asked a neighbor of mine if there was no county or State law to forbid selling beer to such a class of people in that way. He said he did not think the saloon-keepers had violated any law; and somebody said that, as the Italians were not citizens of the United States, nothing would be done about it. They would bury their dead when they got around to it, and that was all there was of it. I have learned since, however, that the surviving murderer was tried, and sent to the penitentiary for five years. Nothing was said about the saloon-keeper, and no objection was raised or even suggested that he ought not to go right on furnishing more beer to anybody who had the money to pay for it. In fact, just one week later, if I am correctly informed, another murder was reported.

There are not only Italians in that vicinity, but there are quite a few Indians. Until within a few years it was against the law to sell intoxicating liquors to Indians; but the saloon-keepers and brewers thought their liberty was curtailed; and by urging that, as the Indians were tax-payers, they ought to have the privilege of making purchases like other people, the law against selling to Indians was repealed. Now they buy just the same as anybody else. An Indian came into Sutton's Bay riding a wheel. As the roads were rather bad, or for some other reason, he decided to send the wheel home on a neighbor's wagon.

This was done, and the neighbor started off. Several persons were standing around who witnessed the occurrence. Then the Indian went in to get some beer. When he came out, dazed and crazed with the poison, he had evidently forgotten about sending his wheel home; and, looking about for it, and not finding it, he accused a bystander of taking it. This young man who was, by the way, a person of education and intelligence, and a valuable citizen, informed the Indian in a gentlemanly way that he had not touched his wheel, and reminded him of putting it on the wagon, adding that he saw him do it. The drunken Indian instantly called him a liar, drew a revolver, and shot him. It was supposed that he was dead; but it is now thought he will live. The Indian was tried, and sentenced to three years in the penitentiary. The saloon-keeper who robbed him of his reason, and prompted him to that crazy action, did nothing out of the way—at least so the laws of Michigan seem to have decided.

Last Sunday, Nov. 9, while on our way to the Bingham Sunday-school, a short little Italian passed us, going with rapid strides toward the town of Bingham. Half an hour later this same fellow passed the Sunday-school, sweating and puffing under a keg of beer that he had on his shoulder. At the hour of Sunday-school, between half-past ten and eleven, Sunday morning, he went down to Bingham, in broad daylight, mind you, bought a keg of beer, and carried it up to their camp, a mile or more away. During the past month I have had considerable experience in carrying heavy loads; in fact, I have handled one or more times almost every bushel of a thousand bushels of potatoes, and know how fatiguing it is to carry a bushel of them just a few rods. This man, not as tall as I am, carried a keg of beer, weighing probably more than a bushel of potatoes, a plump mile, during a warm autumn day. Some powerful stimulus to both mind and body must have operated on him to induce him to undertake a task like that. Now, this gang of laborers knew all about how a few kegs of beer killed two of their companions and sent another to the penitentiary; and there they were, going to keep up the same program, probably, Sunday after Sunday. These fellows have no money to spare. Their camp is made up of a lot of huts formed of rails, and covered with sods. It looks like the old-style Indian wigwams; but instead of furs they used only thick sods of June grass. When the storms and frosts of a northern winter come in their locality, they will certainly suffer in such quarters, and they have no money to spare; and yet the laws of Michigan permit them to waste their money in the way I have indicated. The saloon-keepers and brewers, you see, are interested parties. They are the ones who do not want anything done about it. A few days ago, when the Russian Dukhobors got crazy on religion the officers of the law took them by *main strength* and moved them into quarters where

they could be protected from the severity of winter. This was a case where the saloonmen and brewers had nothing to lose by the enforcement of a humane law. By the way, I want the Anti-saloon League of Michigan to give me their opinion in regard to the above. Is there no law to bring these rum-sellers to justice? I am reading the *State Issue*, published by the Anti-saloon League of Michigan, with much interest, and I wish they would copy the above and give me their opinion in regard to the matter.

Oh! Michigan is not the *only* State in the Union where laws are trampled under foot. The *Cleveland Leader* has been, for a year back, vehemently protesting because the saloons of Cleveland were allowed to run day and night, Sundays as well as week days, and finally right through election day, in open transgression of the plain and explicit laws and ordinances of the State and city. I declare I almost began to think that the whisky element was getting on top and bidding fair to *stay* on top; but may the Lord be praised for an editorial in the *Leader* of Nov. 11. Let me give you a part of the heading, which I clip from the first article on the first page:

THE OLDER OFFICERS TO BE THROWN OUT
OF THE POLICE DEPARTMENT.

DIRECTOR DUNN TELLS FIVE VETERAN CAPTAINS
THEY MUST RESIGN OR STAND TRIAL ON CHARGES.

The conversation below is supposed to be between one of the *Leader* reporters and Director Dunn:

"What is the reason for this shake-up?"

"The department is inefficient at the present time. It has got into a rut. Orders are issued at the City Hall and they are never heeded. All laws are being disobeyed. The fact that these captains permitted such things to go on only sets a bad example in the department. We want strict discipline."

"What laws have been disobeyed?"

"The election laws."

"You mean the law regulating the closing of saloons on election day?"

"Yes."

"Why, then, did you wait till after election before taking this action, when saloons have been running wide open after midnight daily and on Sunday unmolested?"

"The principal charge that will be made will be a violation of the election laws. There was evidently no pretense to close the saloons on election day. Most mayors have insisted that they be closed for 24 hours on election day. Mayor Johnson, though, has been more liberal. He has permitted them to open after the booths were closed."

"Do you mean to say that any effort is made to close the saloons on Sundays?"

"They are supposed to be closed. Some of the saloon-keepers keep a man at the door. We won't let a patrolman in citizens' clothes enter a saloon for the purpose of arresting the proprietor on the charge of violating the closing ordinance. The man at the door is not chump enough to let a patrolman in uniform enter, you can be sure."

The Director, in continuing his explanation as to why the police captains were asked to resign, said, "We want bright, active, hustling young men in those positions. I am not saying a word against the character of any one of these five captains. They have simply outlived their usefulness in the department. Things have changed since they went on the force. They have not. We want the department conducted in an up-to-date style, even though we have a small force of men."

It was rumored at the City Hall yesterday that Mayor Johnson left the city Saturday for the chief purpose of escaping from the storm which is sure to follow the action taken yesterday by the Director of

Police. Mayor Johnson was willing to have the Director take the step on Saturday, but Mr. Dunn, for some reason, decided to wait until yesterday, when he could get the captains together at their regular meeting.

If the police captains are retired they will each draw \$65 a month from the pension fund of the police department, to which each of them has been contributing monthly for years. Their salary at the present time amounts to about \$125 a month.

Please notice these police captains have been drawing \$125 a month. Perhaps it would be uncharitable to ask how much *more* they get from the saloon-keepers for *not* doing what the city pays them \$125 a month to do. Oh! this thing is not new. When it runs about 25 years without much hindrance, as it has in Cleveland, things get to be so bad that there is a revolt, such as they have had in New York—yes, and in Chicago, and, to some extent, in Philadelphia. And, dear friends, it is the Anti-saloon League that is making protest and stirring up such revolts. Of course, I mean to include all other temperance organizations for the enforcement of law. Now, what are you doing to break up the whisky ring? Our text, no doubt, pronounces woe on one who hands the bottle to his neighbor or holds it up to him and asks him to take drink. But I hardly need remind you that it *also* means woe to a man who helps in any way to furnish these bottles and contents, and places them where some poor neighbor may be tempted. It means, too, the man who stands still and does nothing when the bottles are being passed about. Nay, further: it means the man who is so busy that he can not stop work to go and vote; and I do not know but it means the man who is so busy growing potatoes that he can not stop long enough to look after the enforcement of law in his vicinity.



CHAPTER II.

GOING TO THE COUNTY FAIR; ALSO SOMETHING ABOUT FAIRS IN GENERAL.

Before telling you what I found at the Leelanaw Co. fair I want to say that no one on the side of Carp Lake where I am situated seemed to think it worth while to attend the fair; and I do not know but many of the readers of *GLEANINGS* will think I was unwise to urge the young farmers to leave their work to go to the fair for even one day. I believe, however, I am right. There should *be* a fair, and it should be attended by all the good people; and these same good people should have a competent board of managers to keep out every thing that fosters evil. I told the boys who worked for me (and the boys in my neighborhood), they should go to the county fair to see the improved implements for farming, if for nothing else. They seemed to think they would not find them there. I told

them I never attended a fair in my life where they did not have on exhibition, at least to *some* extent, the best tools and machinery before the world. I told them I found the Daisy wheelbarrow at a county fair; and, by the way, my Daisy wheelbarrow has been the admiration of all the farmers and everybody else in the neighborhood. No such light strong wheelbarrow had ever been seen in that locality until I brought in mine. Again, I had a thousand bushels of potatoes to dig; and as I was situated it seemed best to dig them by hand. I wanted the very best hand diggers made. In that region potatoes are dug with both fork and hook. My boy Earl is an expert in this line. He uses a hook and fork both. When he is tired of one he uses the other. I went over to our country store and paid 75 cents for a hook. Of course, I got the best they had. But the tines, instead of being sharp and tapering, were blunt. Earl used it perhaps one day, and then brought his own from home. He said my blunt-pointed one would wear down sharp in the course of time. I told him I wanted one that was *made* sharp and needle-pointed on the tines. He said there was no such thing on the market. I told them if they would come with me to the county fair they would find different patterns of potato-hooks; and I was sure some enterprising manufacturer would have some that were sharp-pointed to start with. Another thing, this blunt-pointed potato-hook, when it strikes a potato, mangles it fearfully compared to the damage done by the slender-pointed hook. An old hook that has been used for years becomes polished like a needle. The daughter of my nearest neighbor, while digging potatoes a year ago, plunged the tine of the potato-hook through her little brother's foot. He was picking up potatoes, and had his bare foot under the dirt, where she did not notice it. The keen polished steel went clear through the foot and out on the under side. Of course, she pulled it out at once and then hustled him off eight miles to Traverse City to see a doctor. He said if the steel was clean and bright, no harm would be likely to result, and he was right. Little if any blood was shed, and the boy went right along with his regular work.

Now, the damage to a potato is a good deal like the damage to that foot. Of course, the potatoes should not be "jabbed" by the diggers; but some varieties that spread greatly in the hill can not well escape. These boys, neighbors of mine, are all interested in the best cultivators, the best plows, the best harrows, whiffletrees, doubletrees, stoneboats, vehicles, and every thing else found on the farm. When half a dozen of them get together and look over a new tool they will point out its defects and good points, oftentimes almost as well as the gray-headed *old* farmer. I wanted to take the crowd of boys with me to the county fair, but not one would go. They laughed among themselves, and said they guessed I would change my mind after my visit.

Let us now go back to where I was the next morning after my cold bath. The girl who promised to have my overcoat cleaned and ironed by breakfast time said she was busy the night before, and did not get it done; and although it was a frosty morning I started for the county fair without my overcoat. Although the sun was shining bright when I reached the gates of the fair-ground, there was nobody in sight. As the gates were wide open I walked in. I found the managers of the fair in a little bit of hut filled with tobacco smoke around a hot stove. One of them took my money and gave me the keys to the agricultural hall and ladies' department. Now, I dislike to find fault with things; but the buildings containing these exhibits were hardly fit for a decent cow-shed; but the *exhibits* inside were good. There were, perhaps, fifty different samples of potatoes. These were worth to me all my trip of 18 miles around the lake. The display of fruits was fair; and there was a very good show of every thing that grows in the garden. This was interesting to me because I wanted to know what crops succeed in the Traverse region. When it came to the exhibition of implements, there was nothing, with the exception of a machine for separating cream from milk—not a hoe, spade, shovel, potato-digger, plow, harrow, nor any thing else; and it was the same with places of amusement for the children. There was not a swing nor a merry-go-round nor any thing of the sort. The people were expected to come there and pay 25 cents to get inside the yard (inclosed with poultry-netting), without any windmills, farm implements, thrashing-machines, feed-cutters, nor any thing such as we ordinarily see at a county fair here in Ohio. I asked how many were in attendance the day before, and was told there were *thirty or forty*. I attended the last day. They said the people would not come out because 25 cents was too much for a fair with no attractions and but little in the way of educating farmers. The managers said they could not make a *better* show with the little money they got.

Now, this is a bad state of affairs; but the objection to having things in better shape reminded me of the objections I met in trying to build up the membership of that little church in Bingham. The people stayed away from church because they had a minister only every other Sunday, and he did not live among the people. They could not pay a minister salary enough so he could live among them and preach every Sunday, *because* not enough people attended, etc. And this same fashion of doing things has got into the schools more or less.

I wish to say a word more about the potatoes. The exhibits were mostly made up of very large potatoes. In harvesting a crop it seemed to be the fashion to select the biggest ones to take to the county fair; and, of course, these would be overgrown monstrosities. There were a few baskets of medium-sized handsome table potatoes; but there was not one of the Freeman nor one of

King of Michigan, even, on exhibition. There was one jar of extracted honey among the jellies; not a single section of comb honey, and yet Mr. Hilbert has sent us something like a ton of his handsome honey in the latest and most approved sections I think I ever saw. One case of his honey at that fair would have attracted as much or more attention than any other one exhibit. It would have opened the eyes to the possibilities of bee culture in that region; and had he had stated what his crop was it would have been still more valuable.

Perhaps some of you say, "Mr. Root, why didn't you take some of *your* nice sections, King of Michigan potatoes, big onions, and other things you have grown around the cabin in the woods?" Well, I should have done so, but I have had no horse during the past season; and as Maple City is not on a railroad, I can not easily get there with my exhibits. Besides, I do not live in Leelanaw Co. except in the summer time.

Before I forget it I wish to mention the fact that I saw the largest and finest ground-cherries (or husk tomatoes) I ever saw in my life, at this fair. They looked like large beautiful plums incased in husks. There was no label to indicate what the new variety was, so I can not tell whether it was because the soil is specially adapted to it, or whether it is one of the new kinds we find mentioned in seed catalogs. A man from that vicinity, who felt sad, as I did, to see such a state of affairs, especially in a county with the wonderful privileges offered by Leelanaw, said something like this:

"Mr. Root, it is the flourishing saloons and *whisky* that are at the bottom of all this sort of work. When the Anti-saloon League gets to work in earnest in our county we shall have a different state of affairs, not only with county fairs, but in every manner of 'affairs' pertaining to everyday life."

On my way home I had a little time to wait for a train at Solon. I asked the ticket agent how far away it was to the town where the stores and business houses were.

"Why, Mr. Root, there isn't any town. It is all right here, right before you."

"Why, I think this must be the place. I met a man who is quite a temperance worker at one of our Sunday-school conventions. He told me his name was White, and I afterward learned that he owned a hotel and store; and I think they said it was at Solon. I was a little surprised to find a hotel-keeper who was such an earnest advocate of temperance Christianity."

"Oh! yes, that is all right. There is the store and the hotel right before your face; and all they said of Mr. White is true."

"Why, do you mean that that neat-looking farmhouse is a hotel and store?"

Just then I caught sight of some hives in the dooryard, and I walked over. My good friend White was absent at the county fair; but when his wife found out who I was she said "Jimmy," who was out in the cornfield, would be delighted to see me, and she hastened to call him in. Jimmy was a boy in

short pants, but he had the A B C book, and took GLEANINGS. He was greatly taken up with the chapter on bee-hunting and getting wild bees in the woods. His apiary was largely composed of swarms he had captured in the woods, and transferred into hives. A little crowd soon collected when told that the senior editor of GLEANINGS was in the neighborhood. Oh, how it rejoiced my heart to meet a young boy like Jimmy! It made me think of that other boy in Florida whom I called the youngest subscriber to GLEANINGS. Jimmy can not be more than twelve years old, yet he is not only well posted but he has made a success of capturing wild swarms, and setting them at work in his dooryard. Just think of it, friends. With a little encouragement a boy may be interested in things of this sort, or if he has a little encouragement in another way he may be induced to spend all his small earnings at a saloon up town. Which shall it be? And by the way, friends, since I have met with so many discouragements in the way of trying to interest the boys in making the county fair what it ought to be, I wish in your letters to me you would give me briefly some hints in regard to such fairs. How are they run in your county? and am I not right in taking the stand that they should be a means of education to the young boys growing up on the farm? May God help us in looking after the fairs held annually, or perhaps that *should* be held annually, in our respective counties.

On my way home I went to Traverse City, and tried to find such a potato-digger as I have described, at one of the leading hardware stores. They had only the blunt-pointed ones at 75 cents. They said there were no others in the market. But on another street, at a place where they sell nothing but farming-implements, I found a very light neat potato-hook, with tapering oval-shape steel tines ending in a sharp point, and the price of this superior tool was only 55 cents. I took it home, and carried it out into the field where the two young men were digging potatoes. They gave a whistle as soon as they tried it, and the implement paid for itself in the next two or three days. Our boy Earl (Mr. Earl Rossa) is an expert in digging potatoes, and he has an invention of his own in the shape of a leather strap attached to the digger so as to form a loop for the hand. This loop enables one to give a strong pull at the handle without being obliged to grasp it so tightly to prevent the hand from slipping. With the new digger Earl dug and picked up 45 bushels of Lee's Favorite potatoes in one day, for which he received 5 cents a bushel, or \$2.25, while his regular wages is only \$1.25 per day. I have gone into details as above to show you the importance of having the *best tools* there are in the market. And let me say again in closing that the county fair is *exactly the place* where the best tools made should be exhibited, both for the benefit of the manufacturer and dealer as well as for the customer.

GRAND CLUBBING OFFERS

BY SPECIAL ARRANGEMENTS with the publisher of GLEANINGS and other publishers interested, we are able to offer GLEANINGS subscribers some very attractive combinations. Subscriptions to any of the periodicals named may be either new or renewal, except in a very few cases where new is specified. Subscriptions may begin at any time, and are always for a full year. The different periodicals in the combination may all go to one person or they may go to different persons, to the same address or to different addresses. To help in forming clubs, we have arranged the following classes of publications, in each case giving the publisher's regular subscription price.

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| | | | |
|----------------------------------|---------|----------------------------------|---------|
| GLEANINGS..... | \$ 1 00 | Little Chronicle | \$ 1 50 |
| Woman's Home Companion..... | 1 00 | Electrical Age..... | 1 00 |
| Household | 1 00 | Farm Poultry..... | 1 00 |
| National Magazine..... | 1 00 | American Fancier..... | 1 00 |
| Leslie's Monthly, with calendar | 1 00 | Ohio Farmer..... | 1 00 |
| Era | 1 00 | Michigan Farmer..... | 1 00 |
| Campbell's Illustrated Journal.. | 1 00 | Practical Farmer..... | 1 00 |
| Recreation (new)..... | 1 00 | Buffalo Weekly Horse Gazette.... | 1 00 |
| Ledger Monthly..... | 1 00 | Farm Journal (5 years)..... | 1 00 |
| Hints..... | 1 00 | Fern Bulletin..... | 1 00 |
| Young's Magazine..... | 1 00 | Vick's Magazine (3 years)..... | 1 00 |
| Youth | 1 00 | Ad Writer..... | 1 00 |

CLASS B

| | | | |
|-----------------------|------|---------------------------|------|
| Chautauquan..... | 2 00 | Lippincott's | 2 50 |
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| Toilettes..... | 2 00 | Popular Science News..... | 2 00 |
| World To-day..... | 3 00 | Trained Nurse..... | 2 00 |

CLASS C

| | | | |
|-------------------------|----|----------------------------|----|
| Poultry-Keeper..... | 50 | Conkey's Home Journal..... | 50 |
| Good Health Clinic..... | 50 | Commercial Poultry..... | 50 |
| Woman's Work..... | 50 | Vick's Magazine..... | 50 |
| Good Literature..... | 35 | Ladies' World..... | 40 |

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| | | | |
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| Two of Class A..... | 1 75 | Two of Class A, one of Class B.. | 3 25 |
| Three of Class A | 2 25 | One of Class A, one of Class C.. | 1 50 |
| One of Class B..... | 2 25 | Two of Class A, one of Class C.. | 2 00 |
| Two of Class B..... | | | 3 75 |

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| If the Youth's Companion is not wanted, deduct \$1.75. | | Gleanings, American Mother, Woman's Work, and McCall's..... | 1 50 |
| | | Gleanings and McCall's Magazine..... | 90 |
| | | Gleanings and Great Round World..... | 2 00 |
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Catalog containing clubbing rates on over 2000 periodicals, hundreds of combinations similar to these named here, together with liberal cash and periodical prizes, sent on receipt of a postal-card request, after Nov. 20. In ordering, be sure to name Gleanings, and address

C. M. Goodspeed, Lock Box 731, Skaneateles, N. Y.

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| | |
|---|------|
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| Everybody's, Cosmopolitan, and Success..... | 2 00 |
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| Cosmopolitan, Woman's Home Companion, and Ladies' World..... | 1 50 |
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On these four periodicals we offer a very liberal commission to bonafide agents, postmasters, and publishers; also prizes to the value of \$300.

Pen-and-ink price quoted on any list of papers you wish either foreign or domestic.

Fifty-two-page catalog for 1903 will be ready to mail for the asking by November 20th. Be sure to tell us where you saw this ad. If you do tell us that you saw it in GLEANINGS we will send you a nice package of flower or vegetable seeds absolutely free, but of our own selection.

ADDRESS

C. M. Goodspeed, Skaneateles, N. Y.

Lock Box 731.



There have been several inquiries about eucalyptus seed lately, as to where it could be obtained. We have received notice that it will be furnished by C. H. W. Weber, Cincinnati, O., after November.

NO. 25 JARS FOR HONEY.

We regret to be obliged to announce that our stock of No. 25 1-lb. honey-jars is exhausted, and the factory which has been supplying us is having trouble with their help, so they can not tell us when we may expect more. We ordered a carload last May of which we have received less than half. We are doing what we can to get them elsewhere. We still have some 20 to 25 gross of No. 143, which is the same style jar holding 14 oz., and can get more of this size promptly, and the price is 25 cents per gross less than our No. 25. We are also prepared to furnish promptly the new jars shown in last issue.

SECOND-HAND FOUNDATION-MILLS.

We have on hand and offer for sale the following second-hand foundation-mills. Any one desiring a sample of the work of any one of these machines, or further particulars, we shall be pleased to accommodate on request.

No. 05, 2x6, hex. cell, extra thin, in fair condition. Price, \$8.00.
 No. 013, 2x6, hex. cell, extra-thin super. Price, \$8.00.
 No. 014, 2x6, hex. cell, extra-thin super. Price, \$8.00.
 No. 081, 2x6, hex. cell, thin super. Price, \$8.00.
 No. 086, 2x6, hex. cell, ex. thin super, good. Price, \$10.
 No. 087, 2x6, hex. cell, ex. thin super, good. Price, \$10.
 No. 2132, 2x6, hex. cell, thin super. Price, \$10.
 No. 2227, 2x6, hex. cell, thin super. Price, \$10.
 No. 015, 2½x6 hex. cell, thin super. Price, \$10.
 No. 2275, 2½x6, hex. cell, ex. thin super. Price, \$10.
 No. 085, 2x10, round cell, medium old-style frame, in good condition. Price, \$12.
 No. 088, 2x10, round cell, med. to light, in good condition. Price, \$14.
 No. 050, 2x10, round cell, medium. Price, \$12.
 No. 044, 2x10 Pelham, nearly new. Price, \$6.
 No. 049, 2x10, Pelham, nearly new. Price, \$6.
 No. 0049, 2½x12, round cell, old style fr. Price, \$12.
 No. 084, 2½x12, round cell, very old style, in fair condition. Price, \$10.
 No. 046, 2½x12, round, medium, Dunham. Price, \$10.
 No. 042, 2½x12, round, medium, late pattern, good condition. Price, \$15.
 No. 043, 2½x14, round, medium to heavy, good condition. Price, \$14.

Special Notices by A. I. Root.

HOME AGAIN.

Here I am at my old home in Medina (for the winter) answering the accumulated letters as fast as I can. I am strong and well, and ready to help wherever I can do most good.

BASSWOOD-TREES FOR FALL PLANTING.

Now is the time to plant them out, and basswood trees very seldom fail either fall or spring. We have a very nice stock of trees that we can furnish as follows:

| | Per 10 | Per 100 |
|-------------------------------|--------|---------|
| One foot and under, each, | .05 | .30 |
| The same postpaid by mail, | .08 | .35 |
| Trees one to five feet, each, | .10 | .75 |
| | | 5.00 |

These last should be sent by express, but we can send the small sizes, say one to three feet, by mail by adding one-half more than the above prices for postage. Above trees are all growing on our own grounds, and can be sent by return mail or express.

GRAND RAPIDS LETTUCE SEED.

Our two-bushel bagful of that extra strain of G and Rapids lettuce seed (grown expressly for us), has been on hand for some time, but is now rapidly going off. If you haven't got your plants going for raising lettuce under glass, do not lose a day in getting some seed in the ground, or started in some way; even boxes in the house will give you plants enough to start on a small scale. See notice on page 784, Sept. 15. Ounce, 5 cents; 1 lb., 50 cents; 5 lbs., \$2.00. By mail 10 cents extra for packing and postage. Grand Rapids lettuce grown under glass seems to be a staple article everywhere, and a crop can be secured in any locality in forced beds in the greenhouse, under hot bed sashes, etc. A good many times the lettuce grown in a single season will pay for the entire plant, greenhouse, hot-beds, cold-frames, etc.

SEED POTATOES FOR 1903.

Our crop of something over 1000 bushels is not only all dug but is here in Medina in our potato-cellars, and is being sorted as rapidly as we can get at it. Since digging them all I have changed my mind in regard to some of the varieties. With many I have been agreeably surprised, and with a very few disappointed. King of Michigan, grown here in our Medina soil, was the cleanest and handsomest potato I ever saw; and I expected on our light Michigan land it would be fully as good if not better. After digging I was disappointed in finding it not as handsome as here in Ohio—more irregular potatoes. The yield was not as large as I expected, and, lastly, there were a good many small ones. They were grown side by side of the Carman. The Carman gave us a larger yield than the King of Michigan, fully as handsome in shape, and there was scarcely a potato in the lot too small for table use. They were all large, and some of them too large. I planted them close in order to keep the size down but next season I am going to plant them closer still. The Carman, however, is not up in quality with the King of Michigan. Both were killed by a frost when they were growing quite thriftily. On this account I have put the King of Michigan at \$3.50 instead of \$5.00 per barrel. Perhaps I should say that on friend Hilbert's place, a mile away, he thought the King of Michigan yielded a little better than the Carman. The shape is rather better than mine, but there were too many small ones. The table below will give prices.

TABLE OF PRICES.

| NAME. | 1 lb. by mail. | | 3 lbs. by mail. | | Half Peck. | | Peck. | | Half Bushel. | | Bushel. | | Barrel, 12 pks. | |
|-------------------------|----------------|----|-----------------|----|------------|-----|-------|-----|--------------|------|---------|-----|-----------------|------|
| | \$ | ¢ | \$ | ¢ | \$ | ¢ | \$ | ¢ | \$ | ¢ | \$ | ¢ | \$ | ¢ |
| Red Bliss Triumph..... | 18 | 40 | 54 | 30 | 40 | 30 | 40 | 75 | 125 | 250 | 125 | 250 | 1250 | 3000 |
| Six Weeks..... | 18 | 40 | 54 | 30 | 40 | 30 | 40 | 75 | 125 | 250 | 125 | 250 | 1250 | 3000 |
| Early Ohio..... | 18 | 40 | 54 | 30 | 40 | 30 | 40 | 75 | 125 | 250 | 125 | 250 | 1250 | 3000 |
| Early Michigan..... | 18 | 40 | 54 | 30 | 40 | 30 | 40 | 75 | 125 | 250 | 125 | 250 | 1250 | 3000 |
| Early Trumbull..... | 18 | 40 | 54 | 30 | 40 | 30 | 40 | 75 | 125 | 250 | 125 | 250 | 1250 | 3000 |
| Bovee..... | 18 | 40 | 54 | 30 | 40 | 30 | 40 | 75 | 125 | 250 | 125 | 250 | 1250 | 3000 |
| New Queen..... | 18 | 40 | 54 | 30 | 40 | 30 | 40 | 75 | 125 | 250 | 125 | 250 | 1250 | 3000 |
| Freeman..... | 18 | 40 | 54 | 30 | 40 | 30 | 40 | 75 | 125 | 250 | 125 | 250 | 1250 | 3000 |
| Lee's Favorite..... | 18 | 40 | 54 | 30 | 40 | 30 | 40 | 75 | 125 | 250 | 125 | 250 | 1250 | 3000 |
| Twentieth Century..... | 15 | 35 | 50 | 35 | 60 | 100 | 250 | 125 | 250 | 1250 | 125 | 250 | 1250 | 3000 |
| State of Maine..... | 15 | 35 | 50 | 35 | 60 | 100 | 250 | 125 | 250 | 1250 | 125 | 250 | 1250 | 3000 |
| Maule's Commercial..... | 15 | 35 | 50 | 35 | 60 | 100 | 250 | 125 | 250 | 1250 | 125 | 250 | 1250 | 3000 |
| Carman No. 3..... | 15 | 35 | 50 | 35 | 60 | 100 | 250 | 125 | 250 | 1250 | 125 | 250 | 1250 | 3000 |
| Sir Walter Raleigh..... | 15 | 35 | 50 | 35 | 60 | 100 | 250 | 125 | 250 | 1250 | 125 | 250 | 1250 | 3000 |
| King of Michigan..... | 15 | 35 | 50 | 35 | 60 | 100 | 250 | 125 | 250 | 1250 | 125 | 250 | 1250 | 3000 |
| California Russet..... | 15 | 35 | 50 | 35 | 60 | 100 | 250 | 125 | 250 | 1250 | 125 | 250 | 1250 | 3000 |
| New Craig..... | 15 | 35 | 50 | 35 | 60 | 100 | 250 | 125 | 250 | 1250 | 125 | 250 | 1250 | 3000 |

Seconds, while we have them, will be half price (for description of seconds see page 828), but at the present writing, Nov. 15, we are sold out of seconds of Six Weeks, Early Ohio, Bovee, Carman No. 3, Sir Walter, Russet, and Freeman.

A barrel can be made up of as many varieties as you choose, and they will be at barrel prices if you have a whole barrel or more. We will ship this fall, where wanted, up to Dec. 15; or we will keep them safely in our potato-cellars until next April if you prefer. Potatoes that are wanted in the South we will ship later than the date given above; and we will guarantee protection from frost by giving them extra care in packing in paper and fine sawdust. But as this extra packing incurs extra labor and risk, we shall have to ask a little more, which additional charge will depend on where they are to go, and in what season of the year you want them. Let me know what you want, and when you want to plant them, and we will do the best we can in way of prices.

POTATOES AND GARDEN SEEDS TO BE GIVEN AWAY.

Everybody who sends \$1.00 for GLEANINGS (asking for no other premium), may have 25 cents' worth of potatoes, seeds, etc., providing he mentions it at the time he sends in the money; and every subscriber who sends us \$1.00 for a new subscriber so that GLEANINGS may go into some neighborhood or family where it has not been before, may have 50 cents' worth of potatoes, seeds, etc.

You can have your premium potatoes sent by mail, express, or freight; but if you want them by mail, you must send the money for postage. For 25 cents you can have 5 lbs. of potatoes; but the postage and packing amounts to ten cents for each pound; and I do not believe you want to pay 50 cents in postage for 25 cents' worth of potatoes. As a rule, potatoes should go only by freight; 25 cents' worth is hardly enough for a freight shipment; so by far the better way would be to have them shipped by freight with other goods. The express charges on only 25 cents' worth are very often as much as the postage, and sometimes more.

MY PLUM STORY—A CORRECTION.

Friend Berg tells me I made two mistakes when I wrote up his plum-orchard. The first is that his crop was not produced on trees four years from the nursery, as I had it. He says he told me they commenced bearing in four years, and had given him a crop every year for four years, so the trees were now eight years old from the nursery.

Second, I said a fruit-grower should have a wife and a lot of children. He says if a fruit-grower lives near enough to a town of large size, as he does (only three miles from Traverse City), neither wife nor children are "absolutely" necessary to success; for when he has fruit to pick—strawberries, plums, or any thing else—boys and girls will come from the city on their wheels, bring their dinner, and do all such work by the quart or bushel. He has no help to board, and nothing to do but to look after them and see that they do it right.

THE GIANT GIBRALTAR ONION.

Many of you will remember how I boomed this new onion a year ago and last spring. Well, this year we planted several thousand on our place in Michigan where I grew large onions last year; but I am sorry to relate that not one in ten made a big onion. They went to "scullions," or, as they call them in that region, "suckers." That means a great big neck and top, and no bottom. Some of them are now as thick as my wrist, and almost as long as my arm. I had a few such last year that I left in the ground over winter; and this season, by cutting off the seed-tops, they made fair-sized onions; so I am going to let them stand in the ground. Now, I do not know whether this was because the seed was not as good as it was the year before, or whether it was because the season was so wet. We had a hard time in getting seed to fill orders, as you may remember, and I bought every ounce of seed in the market. I should think it was the fault of the seed, at least to some extent, were it not that friend Greiner, who had seed from the same source as mine, reports an unusually good crop. I wish the friends whom we sent seed would report to me on a postal card what their success was. I will now tell you what I did. I gathered all my nice onions and planted them out the right distance apart to grow onion seed next year. The one big onion I spoke about keeping so long on my table last winter was planted, and we now have from it a few seeds. I shall give them a careful test. I want to know how much better is home-grown seed of the Giant Gibraltar than that which is imported from abroad. We will see if we can not get a strain of American-grown seed that will grow big onions every time, and not scullions.

THE OHIO STATE ANTI-SALOON CONGRESS.

Every one who loves righteousness and hates iniquity especially every one who lives in Ohio, should make an effort to be present at the Anti-saloon Congress, to be held in Columbus, Dec. 1, 2, 3. Let me give you a little clipping from the program:

1. The Initial Effort.—By Hon. J. T. Haskell, author of the Haskell Bill.
2. The Second Attempt.—By Hon. W. S. Harris, author of the Harris Bill.
3. Almost—But Lost.—By Hon. T. H. Clark, author of the Clark Bill.
4. Victory.—By Hon. J. H. Beal, author of the Beal Law.

The League Before Congress.—By Rev. E. C. Dinwiddie, Supt. of the Legislative Department of the American Anti-saloon League.

The rest of the program for the three days will probably be equally interesting, but we have not space to give it here. I notice a great part of the addresses are to be reports of victories over the saloon in the cities and towns of Ohio. Here are two for example:

How We Won at Xenia.—By Rev. A. C. Turrell, Pastor First M. E. Church, Xenia, Ohio.

How We Did Not Win at Ironton.—Rev. Homer J. Smith, Ironton, Ohio.

Come and meet with us and learn how.

Kind Words from our Customers.

THE NEW RUSSET POTATOES.

From the 7 pecks of New Russet seed potatoes purchased of you last spring I have harvested 26 bushels of selects, 2½ of baking size and sports, and 3 of small ones, besides using from them since they were large enough to eat. Think I shall dispose of most of them for seed, as they are mostly uniform and of even size. I am well satisfied with the investment.

Nessen, Mich.

CLINTON F. PULSIFER.

SOMETHING IN REGARD TO OUR HOMES FOR OCT. 1.

Mr. A. I. Root.—Owing to a press of other matters I did not get an opportunity to skim through GLEANINGS until yesterday evening. I was deeply impressed with the letter printed at the head of the department on "Our Homes" in the Oct. 1st issue. It is my opinion that you have shown unusual courage in your treatment of the same. That Sunday (or the sabbath) was made for man, and not man for the sabbath, is not commonly accepted by our more strait-laced brethren. In using this word "straight-laced" I do not mean to be in any sense sarcastic or discourteous, for no one has a greater respect for exactness than myself; but I do try to cultivate a broad catholic spirit, and not condemn my brother who uses the sabbath day for purposes that I do not; neither am I to sit in judgment on him as to whether his way is better than mine or mine better than his. I am, however, to discriminate between the pairs of opposites which we speak of as good and evil. If my brother's methods are productive of good it would be sufficient warrant for his continuing them. If mine were also productive of good it would be sufficient warrant for me to continue; in other words, it would depend upon the stage of evolution obtained by each. The Savior, reproving the Pharisees for their notions in regard to the observance of the sabbath, ought to be to us a beacon light and I am sure it is to many; then his rebuking the critic corroborates the position you take.

Yes, the cattle should be turned out of the field into which they have broken, even though it is the sabbath day; therefore the husbandman refraining from all unnecessary work on the sabbath must be watchful that no so called accidents occur.

One of the strongest sentences in your article I here quote: "May God help us to use enlightened common sense in our religion as well as in other affairs of life." Yes, what we ordinarily understand by common sense is about the most uncommon thing in our every-day life. He who is richly endowed with this is walking a little closer to the unperishing law of the Eternal. Would it not be well if people lived, not for to-day nor to-morrow, but for the Eternal?

Your quotation from Paul is most *apropos*; but men construe it differently. I, however, agree with the construction you now put upon it, for I too am sure "that God means me to be ready to lend a helping hand." Truly there is a higher duty imposed upon us than what is considered to be the orthodox way of observing Sunday.

R. A. BURNETT.

Chicago, Ill., Oct. 18.

P. S.—If you wish to use the letter inclosed for GLEANINGS you may. My purpose in writing it was to help.

R. A. B.

To make cows pay, use Sharples Cream Separators. book "Business Dairying" & cat. 288 free. W. Chester, Pa.

The Best of Everything



THE through train service of the Chicago & North-Western Railway from Chicago to Omaha, Denver and the Pacific Coast on the west, the Black Hills and Dakotas to the northwest and to Milwaukee, Madison, St. Paul, Minneapolis and Duluth on the north, is as nearly perfect as modern and skillful management can make it.

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The Colorado Special, only two nights to Denver from the Atlantic seaboard. Solid train Chicago to Denver.

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H. R. McCULLOUGH, 3d Vice-President. W. B. KNISKERN, Passenger Traffic Manager. CHICAGO, ILL.

Not too Late Yet

if you order quick, to get some of Moore's Famous Red-clover Queens this fall. Untested queens, 75c each; six, \$4.00; dozen, \$7.50. Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00. Safe arrival and satisfaction guaranteed. Queens sent by return mail unless otherwise directed.

J. P. Moore, L. Box 1, Morgan, Kentucky.
Pendleton County.

Queens! Queens!

We have five different yards, 5 to 20 miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinoes are bred for business. You can send in your orders at following prices the rest of this year: Tested, \$1.50 each; \$8.00 for six; \$15.00 per doz. Untested, 75c each; \$4.25 for six, or \$8.00 per doz. Fine breeders, \$5.00 each. Safe arrival guaranteed. Write for free catalog. Tells how to raise queens and keep bees for profit. **The Jennie Atchley Co., Beeville, Bee Co., Tex.**

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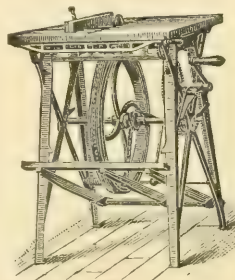
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BARNES'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc. **Machines on Trial.** Send for illustrated catalog and prices. Address **W. F. & Jno. Barnes Co.,** 545 Ruby St., Rockford, : Illinois.

ORGANIZATION.

National, Commercial Organization among bee-keepers is being advocated and encouraged by the Bee-Keepers' Review. The Review believes this is the next great step to be taken in bee-keeping — to so change, or add to, the National Association that its members can co-operate in the selling of their honey, thus preventing unequal distribution, gluts in the market, competition among producers in selling their honey, and consequent low prices. The Review would have it so arranged that any bee-keeper could ship his honey to the nearest branch of the National Association, and be sure that it would be fairly graded, sold at the highest possible price, and receive his pay when it is sold—a large

share of it, if he wanted it, immediately upon delivery.

This subject is the keynote of the November Review. Plans and methods are freely discussed; the discussion will be continued in the December number, and a determined effort made to bring something practical out of the discussion.

If you are interested, if you wish to see what is being said and proposed, if you wish to help the journal taking the lead in this discussion, send \$1.00 for the Review for 1903, and all of the issues for 1902 will be sent *free*. That is, you can get the Review for 1902 and 1903 for only \$1.00, if you send it before the back numbers are exhausted.

W. Z. HUTCHINSON, Flint, Mich.

50 CENTS

That's all it costs for a year's reading of the

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W. H. Laws, Beeville, Texas.

POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts. if you mention *Gleanings* (reg. price, 50 cts.). **Inland Poultry Journal, Indianapolis, Indiana.**

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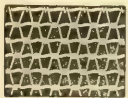
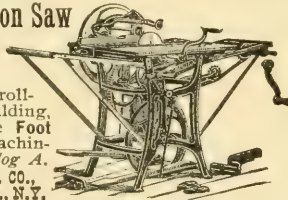
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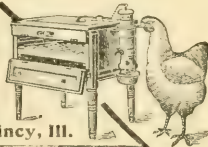
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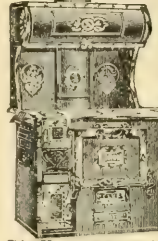
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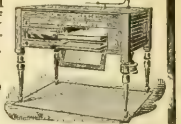
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We are owners of 1000 colonies of bees, and want 1000 more to run on shares. We have the best location in the best part of Texas, and will give as references H. W. Wiseman & Co., bankers; Paul Neubauer, P. M., or any responsible business firm of Floresville or Hutto, Texas. We have heavy fall rains. Next year will be a big one for honey. We have the best assistants we can procure, and have been in the business since 1893. If you have as many as 250 colonies of bees ship them to us, pay the cost of location, and supply us the necessary equipment for honey production, and we will give them all the necessary attention, and give you one-half the honey. Bees must be all in either 8 or 10 frame Dovetailed or Langstroth hives. Let us explain to you more fully, therefore we solicit your correspondence.

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WANTED.—Honey and beeswax. Mail sample, and state price delivered here. C. H. W. WEBER, 2146, 2148 Central Ave., Cincinnati, Ohio.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co., 199 South Water St., Chicago, Ill.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange second-hand 60-lb. cans, boxed, good as new, at 40 cts. per case, for honey at market price. G. L. BUCHANAN, Holliday's Cove, West Virginia.

WANTED.—Every user of envelopes to write me for prices. If it is but a hundred, or if it is ten thousand, I can accommodate you. MARTIN THE PRINTER, Grand Ridge, Ill.

WANTED.—To exchange a Vost typewriter in complete working order, for a Barnes combined foot-power saw—latest model. W. P. HOGARTY, Quindaro, Kansas.

WANTED.—Buyers for a limited number of extra good breeding fowls. Stay White Wyandotte cockrels, \$1.00 to \$2.00; Pekin drakes from 1st prize stock, St. Louis Fair and Poultry Show, \$1.00 to \$2.00; M. B. Turkeys, good ones, hens, \$1.50, toms, \$2.50. MRS. H. R. MILLER, Fulton, Mo.

WANTED.—Comb to render into wax; will pay cash. A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange Angora goats for anything useful. ED. W. COLE & Co., Kenton, Ohio.

WANTED.—To sell blackwalnuts and hickory-nuts at \$1 00 per bushel. A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange for wood-working machinery, wax, or honey, a 12-tune Swiss music-box with harp, drum, chimes, and castanet attachmen's. Address 216 Court St., Reading, Pa.

WANTED.—To exchange one black minorca cock and five cockerels for barred Rock pullets; fine birds and purely mated. J. B. ENOS, Charleroi, Pa.

WANTED.—To exchange extracted honey for dove-tailed hives in the flat, foot-power saw, 1 h.-p. gasoline engine, or offers W. C. GATHRIGHT, Las Cruces, New Mexico.

WANTED.—To buy 50 or 75 colonies of bees in Florida; Italians or Carniolans preferred. State what you have—kind of bees, hives, and price, with or without top stories. J. ALPAUGH, Galt, Ontario, Canada.

WANTED.—Buyer for the remainder of my apiary—15 swarms and supplies. Will sell cheap if sold soon. Also would like a position in apiary for 1903, by young man 23 years of age, 7 years' experience, to begin March or April; North preferred. L. F. STACY, Rt. 26, Wilson, Niagara Co., N. Y.

WANTED.—A good reliable man to take a half-interest with me, as soon as possible, in a newly established apiary which I wish to enlarge. Must have the necessary cash, say \$300, and be well acquainted with the bee business. Don't delay. W. S. COOPER, 123 South St., San Antonio, Tex.

WANTED.—To sell a 5-acre bee-ranch, 4-room house, barn, good well of water, 110 stands of bees, 100 extra hives, 100 comb-honey supers; every thing pertaining to a first-class apiary, just outside the city limits of Los Angeles with 125,000 inhabitants; fine place for bees. The hills are covered with sage, and oranges in the valley; a bargain for some one. J. H. MILLER, Station A, Los Angeles, Cal.

WANTED.—To sell a two-horse, double-gear, level-tread power; Heebner & Son's make. S. H. MUSSELMAN, R. F. D. 4, New Holland, Pa.

WANTED.—Flint-lock muskets dated 1812, 1815, 1816. Will exchange modern fire-arms for same, or will buy. Address 216 Court St., Reading, Pa.

WANTED.—Beeswax; highest market price paid. Write for price list. BACH, BECKER & Co., Chicago, Ill.

WANTED.—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and 4½×4½ sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid. O. H. HYATT, Shenandoah, Ia.

WANTED.—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited. TYLER BROS., Nicolaus, Cal.

WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card. N. A. KNAPP, Rochester, Ohio.

WANTED.—We want to hear from those having choice comb honey to sell, stating quantity, quality, size, and style of sections, and how packed. If not yet packed for shipment state how soon you can have it ready, and the price asked delivered here or free on board at your place. THE A. I. ROOT CO., Medina, Ohio.

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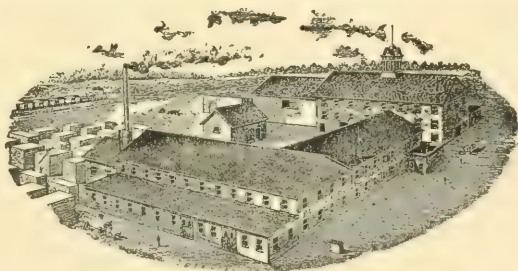
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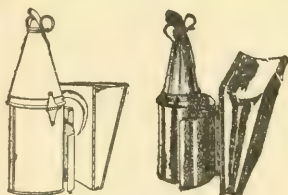
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Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop ink drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire. Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

BUFFALO.—Fancy comb, 15¢ 16; A No. 1, 14¢ @ 15; No. 1, 14¢ @ 14½; No. 2, 13¢ @ 13½; No. 3, 12¢ @ 13; dark, 11¢ @ 12; Extracted white, 7¢ @ 7½; dark, 5¢ @ 6. Beeswax, 28¢ @ 32. Comb honey is in extra good demand.

W. C. TOWNSEND,
Nov. 17. 167 Scott St., Buffalo, N. Y.

NEW YORK.—Supplies of comb honey have been more liberal. Fancy is worth 15¢ @ 16; No. 1, 14¢ @ 15; mixed, 12¢ @ 13; buckwheat, 12¢ @ 13. Extracted, Southern, in barrels, 4½¢ @ 5.

FRANCIS H. LEGGETT & Co.,
Nov. 18. Franklin and Varick Sts., New York.

KANSAS CITY.—Our market has changed quotations from p. and to case. Fancy white, per case of 24 sections, \$3.50; No. 1, \$3.40; No. 2 and amber, \$3.25. Extracted white, per lb., 7½; amber, 6½. Beeswax, 27¢ @ 30.

C. C. CLEMONS & Co.,
Nov. 22. 306 Grand Ave., Kansas City, Mo.

BOSTON.—The demand for comb honey is good, considering the high prices prevailing this year as compared with previous years. Fancy 1-lb. sections in cartons, 16; No. 1, 15½; No. 2, 14. There is practically no No. 2 honey here, with only a fair stock of No. 1. On extracted we quote from 7a/8, according to quality.

BLAKE, SCOTT & LEE,
Nov. 14. 31, 33 Commercial St., Boston, Mass.

PHILADELPHIA.—Comb honey quite active, and more demand for extracted. We quote fancy white clover, 17; No. 1, 15; No. 2, 14; amber, 13. Extracted, white, 8; amber, 7. Beeswax, 30. We are producers of honey, and do not sell on commission. WM. A. SELSER,
Nov. 20. 10 Vine St., Philadelphia, Pa.

DENVER.—Demand for comb honey is not as brisk now as it was earlier in the season. Fancy white comb is scarcer, and brings \$3.50 per case of 24 sections; No. 1 white, \$3.10 @ \$3.25; No. 2, \$2.75. Extracted, 7½¢ @ 8½, per lb. Beeswax, 22¢ @ 25.

THE COLORADO HONEY PRODUCERS' ASS'N.,
Nov. 21. 1440 Market St., Denver, Col.

CINCINNATI.—The demand for comb honey is good, and prices are a little better, as the supply does not meet the wants. Extra water-white fancy is selling as high as 16 cents; other grades less, according to quality. Extracted is very active, and prices are a little better. Amber, 5½¢ @ 5½; alfalfa, 6½¢ @ 7½; white clover, 7½¢ @ 8. Beeswax, 28.
Nov. 18. C. H. W. WEBER,
2146 Central Ave., Cincinnati, Ohio.

SCHENECTADY.—Honey market continues active; prices firm. Buckwheat, both comb and extracted, is getting very scarce, and this will have a tendency to strengthen price of other grades. We quote fancy clover, 16; No. 1, 15; other grades, 13½¢ @ 14; buckwheat, 12½¢ @ 13½. Extracted, light, 6½¢ @ 7½; dark, 6½¢ @ 7.
Nov. 18. CHAS. MCCULLOCH,
523 State St., Schenectady, N. Y.

CHICAGO.—A slow steady market may be said of conditions now prevailing in Chicago. The volume of sales is small, and the receipts are correspondingly so. Fifteen to sixteen cents is obtained for best lots of white comb honey in a jobbing way, while for selections a little more is asked; amber grades 10¢ @ 15, according to flavor, style, etc. Extracted white, 7a/8; amber, 6¢ @ 7. Beeswax wanted at 30¢ per lb., upon arrival.
Nov. 19. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Light extracted honey; cans and kegs, 7¢ @ 8¢ per lb. Sample, 8c.
I. J. STRINGHAM, 105 Park Pl., New York City.

FOR SALE.—Several thousand pounds comb honey in Danzenbaker 4x5 sections. Shall commence filling orders in August.
WM. MORRIS, Las Animas, Col.

FOR SALE.—White extracted honey from alfalfa in 60-lb. cans, at \$4.50 each; light amber honey mixed with Rocky Mountain bee-plum, fine flavor, \$4.20 each. Prices on small cans and pails on application.
M. P. RHOADS, Box 216, Las Animas, Colo.

FOR SALE.—Fine quality of extracted honey, both clover and sweet clover, in 60-lb. cans, at 8¢; also bees in L. frames. Do not send local checks.
DR. C. L. PARKER, Sta. A., R. F. D., Syracuse, N. Y.

FOR SALE.—Extracted honey, from alfalfa, at 7½¢ for No. 1 select, 7¢ for No. 1, 6½¢ for No. 2; discount on 1000-lb. lots. Send for sample.
D. S. JENKINS, Las Animas, Col.

WANTED.—Comb honey, all grades, carload lots or less than carloads, for cash. Correspondence solicited.
JOS. M. McCAUL,
120 and 122 West Broadway, New York.

FOR SALE.—Alfalfa water-white honey, 60-lb. cans, two in a case, at 7½¢; fancy basswood in 250-lb. bbls., 8¢; same in 60-lb. cans, two to a case, 9¢. We buy and sell for cash only.
E. R. PAHL & Co.,
294, 296 Broadway, Milwaukee, Wis.

WANTED.—Honey and beeswax. Mail sample, and state price delivered here.
C. H. W. WEBER,
2146, 2148 Central Ave., Cincinnati, Ohio.

WANTED.—Comb and extracted honey. State price, kind, and quantity.
R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer.
SEAVEY & FLARSHHEIM,
1318-1324 Union Avenue, Kansas City, Mo.



DR. C. C. MILLER.



Forty Years Among the Bees

By DR. C. C. MILLER.

The above is the title, and name of the author, of a new bee-book which will be ready some time in January, 1903, as it is now in the hands of the printers. It is a book that every bee-keeper in the world that can read English will want to own and read. It will contain over 300 pages, be bound in handsome cloth, printed on good book-paper, and illustrated with over 100 beautiful original half-tone pictures, taken by Dr. Miller himself. The book will show in detail how Dr. Miller does things with bees.

The first few pages of the new book are devoted to an interesting biographical sketch of Dr. Miller, which finally tells how he happened to get into bee-keeping. Seventeen years ago he wrote a small book, called, "A Year Among the Bees," but that little work has been out of print for a number of years. While some of the matter used in the former book is found in the new one, it all reads like a good new story of successful bee-keeping by one of the masters.

How to Get a copy of Dr. Miller's "Forty Years Among the Bees."

The price of this new book is \$1.00, post-paid; or, if taken with the WEEKLY American Bee Journal for one year, BOTH will be sent for \$1.75. We hope all who desire to accept this combination offer will do so AT ONCE, so as to have their subscriptions to the American Bee Journal begin with Jan. 1. The Bee Journal will be greater than ever in 1903. Every bee-keeper ought to have it regularly. Better order Dr. Miller's new book and the American Bee Journal NOW

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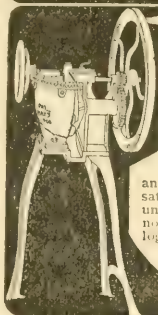
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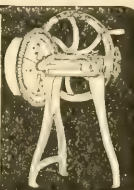
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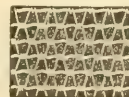
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| 1/2 " " " " " " | 3.75 | 1-lb. Keystone, spring top, gross, | 5 25 |
| 5-oz. " " " " " " | 3.00 | 1-lb. Octagon, spring top, gross, | 5 25 |
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| | | | |
|--------------------------------------|------|---------------------------------|------|
| 100 lbs. white sweet-scented clover, | \$10 | 100 lbs. White Dutch, | \$20 |
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| 100 lbs. Alfalfa clover, | \$12 | 1 oz. Rocky Mountain Bee-plant, | 15c |
| 100 lbs. Alsike clover, | \$15 | 1 oz. Eucalyptus seed, | 20c |

A JOURNAL DEVOTED
 TO BEES AND HONEY
 AND HOME INTERESTS.

ILLUSTRATED
 SEMI-MONTHLY
 Published by THE A. F. ROOT CO.
 \$1.00 PER YEAR MEDINA, OHIO

VOL. XXX.

DEC. 1, 1902.

No. 23



"IF THE PLANT [sweet clover] is left until there is no honey in the blossoms, and the blossoms have gone to seed, it will be too tough and woody to make very good hay," p. 917. Better cross out that "very." Might leave out the "good" too. [I will accept the correction.—Ed.]

KIEFFER PEARS are praised by some and decried by others. I had a few from some young trees last year, and they were not fit to eat. This year the same trees gave nearly a bushel. They ripened up into red-cheeked beauties, and we thought we had never eaten finer pears. I don't know what made the difference in the two years.

SPEAKING of boiled honey, page 947, reminds me that for a week or two I have been using every morning honey that had not been boiled, but had been heated to somewhere near the boiling-point. It is possible that it might agree with some stomachs that could not endure honey never heated, but the taste is so injured that not many would persevere in its use, even if the stomach would stand it.

EDITOR HUTCHINSON says some pretty things about me, and commends me for opposing the use of the term "shook swarms," and then says: "'Shook' swarm is terse, expressive, and catchy, and I doubt if we can do better than to adopt it." "Et tu, Brute?" [While he commends you for opposing ungrammatical terms in a general way, he himself is against you to the extent that he favors my idiosyncrasy for "shook." See editorials.—Ed.]

GUBLER had a queen whose eggs never hatched either into drones or workers. Mentioning this in the *American Bee-keeper*, F. Greiner says: "The writer had such a

queen some years ago. She filled the combs with eggs, but none ever hatched. Finally the queen disappeared." I think such queens are scarce. I have had just one—that is, a queen whose eggs would not hatch during the usual season of breeding. I've had lots of queens whose eggs did not hatch late in the fall. I suppose every one has them.

THE RIGHT TIME to take bees into cellar is often asked for. Wait till they take their last flight in fall or early winter. Then take them in the next day. "What date will that be?" I don't know. You'll have to use your best judgment and then it's largely a guess. I knew one winter in this locality when there was no chance for bees to fly after the last of October till the next spring. This year acts as if it might go to the other extreme. This is the 20th of November, and bees are still flying almost every day—at least a few bees, and some days many. Generally you are safe not to cellar bees till the middle of November.

AFTER READING over three times what you say, p. 931, Mr. Editor, I think I understand your position to be that combs partly drawn out on foundation will be preferred by a queen to old black combs. Please paste in your hat a memorandum to give the thing a trial next summer, and then tell us what you find. Here's what Editor Hutchinson says in last *Review*: "In examining nuclei to see if queens had begun laying, I found that the place to look for the first-laid eggs was always in old black brood-combs—not new combs." [I have done it. I have pasted it in my hat; and if you do not hear from me again, well, I'll not tell you unless I am right.—Ed.]

THE CHIEF ARGUMENT for being satisfied with forced swarms as against *no* swarms lies in the advantage forced swarms give over foul brood. I confess it's a strong if not an all-sufficient argument, wherever foul brood prevails. But then, we don't all have foul brood. [One in my position has opportunity for knowing that foul brood is on the increase at a fearful rate over the

United States in localities where there are no foul-brood laws, or, if there are such laws, they are poorly enforced. The forcing plan will give us relief in such localities. The *Rocky Mountain Bee Journal* ought to be credited with the honor of first putting out this idea to the general public.—Ed.]

I THINK I understand now where we stand, Mr. Editor. The forced swarm is far and away ahead of natural swarming, and utter non-swarming would be still better. So far, we go arm-in arm, and then we part company, for you have given up in despair chasing after the will-o'-the-wisp, non-swarming, while I am still after it, hotfoot. Good-by, old friend. [Yes, we can go arm-in-arm part way. While you go one way and I the other, let measure you that I shall reach the will-o'-the-wisp as soon as you, even if I am not looking for it. "Good-by, old friend," until—until you get through chasing that phantom of a strictly non-swarming race, and then we'll go "arm-in-arm" again. Good-by.—Ed.]

MR. EDITOR, that you should hold the right use of English in such light esteem as to favor for a time the use of the past tense for the past participle "shook" my confidence in your taste, if not your judgment. I am now "shaken" in the security of my position by the force of your logic, p. 933, and "forced" to admit that it is all right to say "forced swarms." Long live "forced swarms"! [But I find I have to force myself to cross out the word "shook" and put "forced" in its stead. Somehow the adjective "forced" does not quite fill the bill. But, "allege samee," I am inclined to keep on forcing myself until "forced swarms" drives out of our columns the terms you do not like.—Ed.]

EDITOR HUTCHINSON has gone into ecstasies over the advantage of anticipating swarming by shaking, and I don't much wonder. One who has had experience with natural swarms can hardly help crying "Eureka" when he learns how far and away the new-old has the start. But, friends, please don't lose sight of the fact that, just as much ahead as shaking is over letting the bees have their own way, just so far is it ahead of either to have no swarming at all and no depletion of either brood or bees to prevent swarming. Just a few of you, at least, keep company with me in the continued quest for non-swarming, without sitting down half way between that and natural swarming, satisfied with forced swarms.

"WHY SHOULDN'T a forced swarm that has had two drives of bees be the equal of the untinkered colony that never thinks of swarming?" quoth ye editor, page 932. I don't know, unless it be that the untinkered colony is saved the labor of building an extra set of combs. Then the cost of two tinkerings ought to be charged up somewhere. [Yes, it is true the cost of two

tinkerings must be charged up somewhere; but will not that charge be less than tinkering with a swarm in the air, chasing to the top of an elm-tree to get it after it is clustered? I have no faith that you will ever get an untinkered swarm that will not swarm. Of course, you will have isolated cases every season, and a whole yard of 'em some seasons.—Ed.]

WHEN I HAD READ, p. 931, that A. I. and wife lived in that cabin in the woods because they didn't know whether it would be their permanent summer home, the answer came promptly from that same woman, "But it's not the *cabin*! It's the surroundings. What do they want to stay there for, out in the woods, away from their folks?" I said, "I don't know." [Mrs. A. I. R. does not like to be away from her folks; neither does A. I. himself. But he derives real enjoyment out of his hobby, going back to primitive life in a cabin—see Homes in this issue. For many years of his life he has been mixed up in the maelstrom of business, the grinding and banging of printing-presses, the whirl of buzz-saws, the click of typewriters, and the answering of questions from employees and correspondents. Well, to get out into the wild woods of Michigan, with that absolute stillness and the tonic of that pure air, away from the nerve-destroyers of his Ohio factory, away from the shriek of whistles and the rumble of heavy trains is a *great relief*; and we boys of younger years are glad to give him this needed rest, although he objects somewhat to shoving all the burdens of business on us.—Ed.]

[Dear friends at Marengo, let me add to what Ernest has said above, that up in the Traverse region Mrs. Root and I find health and happiness such as we have not known here in Medina for many years. It is true we are away from our friends here at home, but, dear friend M., do you not think it possible if not probable that God wants us there? There is a lot of good people there. Quite a bright little Sunday-school needs help and encouragement, and a small body of Christian people also; so can you not see it is possible that God has work for us there, even if we are away from friends? At a recent Sunday-school convention for Leelanaw County, I met a young man who had just been converted. He was asked to take an important position that he seemed scarcely fitted for. He got up and said, "I want to do whatever Christ Jesus wants me to do;" and his face showed such a kindly spirit while he spoke that all his hearers in that little schoolhouse caught an inspiration from him. I believe that all of our children who have paid us a visit up there have owned up to the tonic effects of that beautiful air in the great northern lakes, as Ernest has it; and, dear friend, if you and that "same woman" will come up and make us a visit I think you "two" will agree with us, especially when you get sick or worn out. Do not forget the invitation.—A. I. R.]



Bright shines the sun this warm December day;
Dandelions a pecking, the bees at times at play;
The seasons seem reversed in some peculiar way
When fierce December smiles on us as sweet as pleasant May.

Even a hasty glance over the bee journals of Europe shows a great increase in activity in bee matters. New organizations of bee-keepers are constantly forming; methods are freely and ably discussed; the old is giving place to the new; ruts are being filled up, and new paths are coming into view; new uses for honey are causing an increase in price; new sources of nectar are constantly coming to the front. One French bee paper, *L'Apiculteur*, in addition to its regular 48 pages has an "extra," containing 64 pages, the whole looking more like a book than a magazine. But the journals of this country are in no respect behind in apicultural progress. The leading lines of thought may be stated, broadly, to be in the line of increasing our bee-ranges and finding more and better markets for honey.

Centralblatt, published in Hannover, Prussia, says that the number of bee-keepers' unions in Schleswig-Holstein, in 1872, was 20; now it is 67. In the former year the number of members was only 476; but now the membership is 2921. The district in question is smaller than Illinois, with less population than Chicago alone, and yet it has three times the membership of the National in this country.

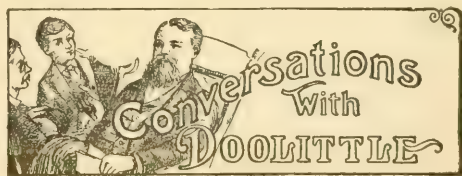
Mr. F. J. Root, 90 West Broadway, New York, a brother of the writer, is a correspondent of the *London Grocer* and other journals. He is in a position to reach a large audience, and is working right along to instruct the world in regard to the uses and nature of honey, and to counteract many false impressions that have been scattered in the press of late years. He sends the following clipping from the *London Grocer*:

Honey is a valuable and wholesome article of food, which is not so much seen on our breakfast tables—and on our readers' counters—as it ought to be; but it will probably be taken up commercially one of these days. A Colonial Office report on Malta mentions that honey is one of the products of that British island. In the northwest portion, overlying the upper coralline limestone, are uncultivated lands suitable for the growth of the wild thyme. A firm at Bichircara cultivate the bee on a rational and commercial basis, and the honey produced is of the first quality. The output could be increased were it not for the destruction of the thyme, which is, when dry, collected for fuel.

If the readers of this journal will send similar items to Mr. R., they may reach a class of readers outside of beedom, and thus do more good than to have them come before readers who are already informed.

Hydromel cuts a large figure in French bee journals. How this beverage would rank in America as a "temperance drink" is something I should like to know. I have never heard of anybody making it in this country. The *Revue Eclectique* says, "Honey wine, in short, should be preferred to all alcoholic beverages, even to beer, which, owing to the lupuline in it, causes narcotism in the cerebral system." So far, so good; but I have always supposed that hydromel had some alcohol in it. If not, and it is an enemy of strong drinks, it may be well to consider it along with soda water, lemonade, etc.

Following up the subject of honey as a food, the *Revue* says, "Everybody knows that the two principal elements which form a perfect food are albuminous substances, such as meat, and hydrated substances, such as sugar. Now, among these last we must place honey, so rich in the principal hydro-carbons. Chemistry shows that its coefficient of nutrition (that is, the quantity of material available for nutrition) is 80; in other words, honey contains 80 per cent of carbo-hydrate. If we admit, with science, that an adult requires 800 grams (about 25 ounces) every day of hydrate material, it will be understood what a help honey offers as a food."



QUEENS BEING "BALLED."

"Mr. Doolittle, I came over this evening to have a talk with you about queens. Did you ever have one balled, or the word *clustered* might more nearly express it?"

"Yes, I have had the bees cluster or ball a queen quite often when I was trying to introduce her. I was often confronted with such things in my early bee-keeping. Have you been having queens balled during the past summer?"

"Yes. It was in this way: I had two swarms come out nearly together. The first had a queen with its wing clipped, and the most of the bees had returned when the other issued, this last swarm having a queen with perfect wings. This swarm clustered, and was hived in the usual way. In half an hour or so the bees began leaving their hive and went straggling back to the hive from which they came. After a little I opened the hive and found a ball of bees nearly as large as a hen's egg on the bottom-board, and in this ball of bees was the queen. Why did these bees act in this way?"

"In this question you have touched on a

matter rarely if ever spoken of by any one; and yet, if my experience is any criterion to go by, this is something which quite often occurs in natural swarming, for I have had several cases of the kind. I remember two or three cases where I have been kept from leaving home as I intended, by this very thing. A swarm would come out near the time I was to go away to some funeral or to church, and I would have them, thinking I had done a nice thing in a little time; but by the time I would get the horse hitched up and myself ready to go, the bees would begin to show a commotion and commence to return to the old hives."

"Do they always return to the old hive when you have such trouble?"

"They always will where the swarm is hived on a new stand; but where the swarm is hived on the returning plan, and the old hive moved away, they will often scatter all over, going into other hives only to be killed, or received according to the condition of the colonies where they went."

"What! will the bees of other colonies kill them sometimes?"

"Yes. And this is more often the case than otherwise, as it is a rare thing that such bees will be accepted by another colony, unless such colony is queenless. A queenless colony will generally accept strange bees, no matter where they come from; and all colonies having queens will almost as surely kill all bees which try to enter their hives."

"That accounts for my having a little swarm which I tried to run in with a weak colony to strengthen it, all killed. But what do you think was the reason the bees balled my queen?"

"I have carefully studied into the cause of such procedure, and believe it comes about by a few bees from other swarms or hives entering the new hive with the new swarm; and as these bees are strangers to those composing the swarm, the queen is balled for safe keeping till all get acquainted, or from some other reason best known to beeology."

"Well, why does the balling of the queen cause the bees to run about and finally straggle off home or enter other hives?"

"As soon as a queen is balled for any reason, the result is very nearly the same as would be the removal of the queen, which, as nearly every bee-keeper knows, means a stampede and general search for her."

"I did not know that such was the case. I have taken away queens from colonies many times, and I never saw any great commotion, as you and others tell about."

"You are talking of removing a queen where there are combs containing honey and brood in the hives. Where there is unsealed brood in any hive the bees know that there can be another queen reared by them, so that such conditions are vastly different from what they are where a swarm is hived in an empty hive, when the loss of the queen means the loss of all the bees in the swarm, unless these bees can get back to the brood

in the hive which they left. In this case, failing to find their queen, their only alternative is to go home if they would preserve their existence; for staying where they are, without a queen, means that they go out of existence as a colony, when the bees which make up the present swarm cease to exist, from death by old age or otherwise."

"I had not thought of the thing in that light, but I guess you are right. But they have not lost their queen. She is only in a cluster of bees, and she would thus be where she is in the midst of the swarm. What is the difference?"

"When the queen has her liberty with the swarm she is constantly moving about among the bees, as I have many times seen queens come out on the outside of a clustered swarm, and then crawl in among the bees again, only to come out a few moments later on the opposite side, or in some different place in or on the cluster; but when she is balled she is not only kept from running around among the bees, but the bees seem to lose scent of her as well. And so the majority of them go on a stampede nearly or quite as bad as they would were she taken from them altogether."

"I see; but what can be done—any thing, save allowing them to go back?"

"Knowing that the supposed loss of the queen is the cause of the trouble, the only way to remedy the matter is to help them find their queen. This can be done by opening the hive as soon as the bees are seen to become agitated and fly out in the air, and smoking the ball of bees till they release the queen, when a general hum of content will be set up, the bees who have missed 'mother' running about with fanning wings, and those in the air returning to the hive with general rejoicing."

"Is this all that is to be done?"

"This once smoking generally restores quietude with the swarm; but in exceptional cases the bees will reball the queen in a few minutes, when another stampede will occur (unless we are on hand promptly with our smoke), many bees being likely to go home to stay, so that, do the best we can, our swarm is so weakened that they will be of little profit to us during that season."

"But is there no sure way to keep them?"

"To obviate these exceptional cases I made a few large flat wire-cloth cages, large enough so that they would cover quite a large part of the tops to the frames of the hive; and when I had smoked the ball of bees till the queen was liberated she was put in this cage and placed over the frames. As multitudes of bees could now get within touch of the queen, and the whole colony became aware of her presence, the same as though she were among them, no more trouble would occur with the bees, and no other to the apiarist except the liberating of her majesty the next morning. A frame of brood will also hold the bees, as a general rule; but as they sometimes ball the queen till she is so injured as to be of no further value I prefer the cage."



THERE is a greater scarcity of honey this fall than we have ever known before. The "bears" have been telling of the great quantities in storage. We can't find it at any price.

How we shipped 500 colonies of bees in Dovetailed hives, from Medina to Cuba, without the loss of a single colony, and with a very light loss in bees comparatively, will be explained in our next issue with illustrations.

SINCE our last issue Mr. Fred W. Muth, of Cincinnati, son of the late C. F. Muth, has seconded the nomination made by Herman F. Moore, of Chicago, for E. T. Abbott, of St. Joseph, Mo., for General Manager. In the meantime Mr. Abbott nominates Mr. G. W. Vandundy, of Utah; Wm. A. Selser, of Pennsylvania; and Wm. McEvoy, of Ontario, Canada, for directors. Mr. Homer Hyde nominates Mr. Udo Toepferwein of San Antonio, Texas, for the same office.

THE NOMENCLATURE OF FORCED SWARMS, AGAIN.

I HAVE been standing alone, apparently, in favor of the word "shook" as applied to a swarm, as being expressive and catchy to indicate a certain kind of artificial procedure in making bees swarm at the convenience of the apiarist. In the *Bee-keepers' Review* for November, page 337, Editor Hutchinson has this to say:

Mr. E. F. Atwater, of Idaho, in writing to GLEANINGS says:

"The expression 'shook swarms' is so expressive, so catchy, and so popular, that it is here to stay, in spite of grammatical rules and of Dr. Miller too."

If the fraternity has a grammatical critic it is Dr. Miller. He keeps close watch and tries to have us use correct language. This course is commendable. I doubt if there is any one who is sorry that he does this.

Once a name or expression comes into use, it is well nigh impossible to change it. For that reason we ought to be careful how we begin using either. About as soon as anybody said "shook" swarm, the doctor took up the cudgel. In that he did his duty, but I fear that Mr. Atwater has described the situation most perfectly. A term that is catchy and expressive is bound to come into use, in spite of all protests from grammarians.

After all, "shook" swarms is not so bad. We might say "shaken" swarms, but it has an awkward sound, and no one will use the expression. "Shook" swarm is terse, expressive, and catchy, and I doubt if we can do better than to adopt it.

I did think for awhile that we might call them "brushed" swarms, but it seems that, in the majority of cases, they are not brushed, but they are shook, and that there are good reasons for the shaking.

Mr. Boardman suggests that we call them artificial swarms. This term means too much; it is too general; it is lacking in definiteness. Artificial swarms are made in other ways than by shaking off the bees. To be sure, a "shook" swarm is artificial, but an artificial swarm may not be a "shook" swarm.

Mr. Root suggests the use of the word "forced" swarm. It seems to me that this term is open to the same objections as artificial swarms. All swarming that is not natural is forced or artificial, and we wish for some term that will designate a swarm that has been formed by shaking off the bees. "Shook" certainly expresses it, and it is not so ungrammatical as it might be. We simply take the word "shook" and use it as an adjective; it may not be in the proper tense, but, to me, the short, expressive, euphonious make-up more than offsets the slight lapse of grammar.

If anybody will suggest a better term, I'll be glad to use it; but at present I am going to say "shook" swarms.

THE NATIONAL CONVENTION AT DENVER.

On Thursday afternoon we listened to a paper from Mr. H. C. Morehouse, of Boulder, Col., the editor of the *Rocky Mountain Bee Journal*, on the subject of Bee-keeping lessons that may be learned from the word "locality." Locality, in the sense to which we applied it to bee-keeping, meant environment. Webster, he explained, gave it the meaning of geographical position; but in bee-keeping he would give it a much broader meaning. Latitude, longitude, altitude, soil, meteorological conditions, all had to be considered. It was not till recently that locality was recognized as an important factor in bee culture. At first it was greeted with derision; but now there was a tendency toward the other extreme. All the various puzzles of the bee-yard were now broadly charged to locality.

The first great lesson to be learned in regard to locality was variation. The speaker then went on to say there was a world-wide difference between New England and Colorado; between Colorado and Texas; between Texas and California. Altitude, soil, and climate had their effect. A system that was suited to Southwest Texas would not succeed at all in Southern California, or perhaps anywhere else outside of Texas; and he ventured to assert that an arrangement that would give the best results on the Western Slope, meaning Western Colorado, would not insure the same measure of success we had sometimes on this side of the Rockies. In conclusion he wished to emphasize the importance of every bee-keeper becoming thoroughly familiar with his own locality. To do this was the study and work of a lifetime. It was an axiom that the man who did not understand his locality was not a bee-keeper in the twentieth-century sense of the word.

This excellent paper was responded to by your humble servant; but as I have been talking about locality for a year and a half, covering my 6000 miles of travel, I will not take space to go over the ground again, even briefly.

On Thursday evening we listened to an instructive address by Prof. C. P. Gillette, of the Agricultural College, Fort Collins, Col., on the subject of "The Outside and Inside of the Honey-bee." This was accompanied by the stereopticon, and, like all such lectures, it is practically impossible to reproduce it on paper. The address was exceptionally interesting — particularly so as the professor invited questions from time

to time, some of which came from Prof. Frank Benton, also an entomologist. These public servants do much to add to our practical bee-lore, even though their instruction masquerades under the guise of "science," usually so little understood by the popular mind. On Friday evening we listened to a very interesting paper from Mr. J. F. McIntyre, of Sespe, Cal., on the subject of "Selling Extracted Honey at Wholesale; how to Get the Best Price." Mr. McIntyre is a bee-keeper who has made a success of his business. So successful has he been that he is one of the few who can hold a crop for a whole year and then sell it when prices are right.

In starting out he said that this was the hardest problem to solve he knew of. The old proverb, that "to him that hath shall be given," still held good; but he would paraphrase it this way: "To him that hath money shall be given a high price for his product; and from him that hath not money, his produce shall be taken at a very low price." Again, he said that all things come to him who can wait. But there was the rub. How could a man with hungry mouths to fill wait with interest gnawing at his vitals? He did not know one neighbor bee-keeper who had his last year's honey crop of any kind. They had all sold out at a low price to speculators. What middlemen had not sold remained on their hands, and they were holding for a higher price, and would get it. What were we going to do about it, and what should we do with the small producer? These questions had never been satisfactorily answered. Was there really any hope for the man who was too poor to hold his crop? He thought there was. For example, the citrus fruit-growers' organization of Southern California had done much to solve a similar problem for the small fruit-grower who was too weak to get good prices for his crop. Before the citrus fruit-growers' organization was put in working order, the fruit business was in such a bad shape that the producer actually received expense bills instead of returns for carloads of oranges he shipped east. They had to do something or quit the business. They organized an association known as the Southern California Fruit Exchange. They put agents under bonds in every large city in the United States, with headquarters at Los Angeles. They pushed the sale of fruit, and were pushing it to such an extent that \$11,000,000 worth of fruit was now consigned to these agents annually, and honest returns made to the grower. But the Exchange had become so successful that they were now willing to help other producers—producers of honey; and there was hope that this organization, already powerful, would be able to take the product of the weak bee-keepers, market their honey for them at any time of the year, in spite of the speculator or of the bulls and bears, and give them fair returns.

On the afternoon of the same day we

listened to a very logical and carefully written paper by Mr. W. L. Porter, on "Out-apiaries for Comb Honey." "The out-apiary," he said, "is the invention of the specialist, the bee-keeper who devotes his whole time to bee culture, and depends on it for his income." But in order to carry on the business successfully, three things must be considered: First, location; second, the stock of bees; third, the method of manipulation." In seeking a location it was important that the bee-keeper bear in mind that there must be an abundance of honey-producing plants. It should not be overstocked, and should be favorable for the location of the hives. As to the bees, he would have those bred with special reference to hardiness. They should have energy and comb-building qualities. A very important problem in connection with the out-apiary business was the control of swarming. Some made a practice of clipping; others to dequeen; but whichever plan was employed, two things had to be considered: First, the colonies should have plenty of storage room, and, if shaded, would be less apt to swarm than those under opposite conditions. Second, that a colony of bees carefully bred was not as much inclined to swarm as one bred without reference to that quality. Managing out-apiaries was not easy work, but was continuous work the year round. Much valuable time was lost every day in going to and from the out-apiary. But in spite of all that, there was much advantage in having the yards scattered. In one locality bees might dwindle badly, or the flowers might fail. In another locality only a short distance away there might be a good crop. Each bee-keeper would have to adapt himself to his own conditions. In closing he emphasized the importance of having all the hives full of bees at the time of the honey-flow.

BOTTLED HONEY GROWING IN POPULARITY.

THERE is no question that bottled honey is getting to be more and more popular with the consumer class. The number of articles that have been published on methods of bottling have resulted in popularizing the sale of honey in glass to such an extent that tons and carloads of it are now put up in that form that formerly sold in bulk at very low prices—too low for the bee-keeper to make a fair living.

If you, dear reader, happen to live in a locality where there is no bottled honey except that which comes from some packing-house, unknown or of doubtful reputation, just try putting out some neat bottled goods of your own, bearing your own label, and see what a nice trade you will have. Your own good reputation, with a personal explanation from yourself, will make the goods move off like hot cakes. But you must make one trip around among the consumers, explaining that it is your honey; how you put it up, and that you guarantee it to be absolutely pure.



FORCED SWARMS.

Plenty of Bees Essential to Success; Shaken when Preparing to Swarm; Shaken on to Foundation Not Recommended; Best Results from Shaking on Empty Combs.

BY J. E. CRANE.

This method of making swarms has its uses and its disadvantages. It will usually prevent swarming or postpone it, I should say nine times out of every ten times you adopt it — perhaps more. I have had such swarms fly out when shaken, and allowed to run into an empty hive, when given frames of foundation, and I believe very rarely, if ever, when given old combs.

If the object is simply to prevent swarming it is pretty effectual, but not wholly to be depended on. But most bee-keepers desire some method that will control swarming, and at the same time give the largest yield of surplus honey. The value of this method will depend very much on the skill with which it is used, and perhaps most valuable when used with other methods of preventing increase.

But let us look over the whole subject more in detail. I have never observed but that "shaken" swarms worked just as industriously as natural ones if there were as many bees. We need strong colonies to treat in this way to get best results, the same as with natural swarms. As we wish to prevent natural swarming we must shake before they would, if left to themselves, swarm. There is danger of having too few bees. Some place their bees out in the spring in pairs, two colonies close together; and when the swarming season arrives one of these colonies is shaken into a new hive while the other is removed to a new location, and given the brood-combs from the one from which the bees have been shaken. Thus one new colony receives all the bees from one old one, and all the mature bees of the other with surplus boxes, etc. This is a most excellent way, although, owing to the size of my hives, and wintering on summer stands, I have not practiced it. I have preferred to shake my strongest colonies when I find them preparing to swarm, and giving the brood from them to weak colonies.

If we shake our bees into an empty hive there will be a loss of ten days to two weeks (usually), unless they are very strong, and honey very abundant, before they will do much in the surplus apartment. Some writers say they can get more surplus honey when a swarm is compelled to build combs

in the brood-chamber than when given foundation or combs; but that is not my experience. In 1901 I gave six or eight shaken swarms, that were very strong, brood-frames having only starters or half an inch of foundation under the top-bar; but I found such did not store nearly as much surplus as those given full sheets of foundation or old combs; and out of all there were not half a dozen good brood-combs — nearly all was drone comb. So I find it much better to "shake" on to full frames of foundation well wired to shaking into empty hives.

But foundation has its drawbacks or disadvantages, or is not wholly satisfactory as a preventive of swarming. During the present season I shook some fifty or sixty colonies into hives with foundation. Some eight or ten of these swarmed out a day or two later, some of them without touching the foundation, while others drew it out a little and then decamped.

As my queens' wings were all clipped, some of the queens returned with a few bees with them while other hives remained silent. Where the bees are content to stay on foundation they usually do well, although, if the queen is old or poor, they will frequently start a little brood and a few queen-cells, and then swarm again.

I have had the best results from "shaken" swarms when shaken on to old combs carried over from the previous year, or from hives where the bees died during the winter or spring. If these combs contain considerable honey it does no harm. I think I should prefer to have them about half full of honey. Last year I gave one such forced swarm a hive full of combs that were nearly solid with honey, and they did nicely. But if the combs are quite free of honey, and you have a good-sized swarm, and honey is plentiful in the fields, they will soon have enough.

One thing you must never give them, and that is brood; for my experience has been that, if they have only a little brood given them, they are sure to swarm out. I have tried many times to make them stay when I had given them a little brood, but, so far as I remember, without success. One would suppose that, if a hive had eight combs of brood, and you were to take away all but one, and give them seven dry combs in lieu of those you have taken, they would be content to give up swarming, but I do not find it so. They seem, somehow, to be tired of tending babies, and the very thought of there being any in the hive disgusts them, and they will not stay. This, of course, refers to colonies that have the swarming fever; so while we may give forced swarms combs having more or less honey *brood must be all removed*. In from ten days to two weeks I find about one in every eight or ten such swarms is building queen-cells and getting ready to swarm. A small part of natural swarms will do the same if hived on old combs, I believe; so we must look out for them, and, if necessary, give them another "shake."

I have observed little or no difference in the industry of such swarms and natural swarms of the same size. During the past season, during a good flow of honey, I could not see but such swarms filled their brood-chambers, and made just as much surplus honey, as other hives in the same yard, that did not swarm at all, or made no preparation to do so. In a season when honey was not very plentiful it might make some difference.

HOW TO CHECK THE SWARMING OF WEAK COLONIES; SCOOPED SWARMS.

I check the swarming of colonies that prepare to swarm before they are very strong by removing their queen with a little brood and a few bees, and then giving to this nucleus some brood from my forced swarms, and soon build such up into good strong colonies. Again, I frequently have in my outyards what, for want of a better name, I call "bunched" swarms. During my absence of a week or more, several colonies may swarm on the same day, and go together; and their queens being clipped they can not go with them, and they will return and go into one or two hives, filling the inside and covering the outside, and spreading out on the ground in all directions—two or three bushels of them. The past season we had an unusual number of such to handle. Early in July we found in our rounds two different yards wherein many hives that had only begun to prepare to swarm the previous week, with others that had not even started queen-cells, had swarmed and gone together, forming these "bunched" swarms. There are quite too many bees in such hives or on them to do well; in fact, such will usually do nothing but loaf, and wait for a young queen to hatch. I have found it works well to take a peck or half a bushel of these bees and give them to a set of combs from which the bees have been shaken. With a dust-pan made with high sides and back I scoop up from such "bunched" swarms what bees I need to give to these beeless combs, and thus form new colonies which seem to do as well as any. Of course, I do not always have these large swarms to go to for bees; but when I do find my bees badly mixed in this way I can straighten them out in this manner, and make them all work profitably.

Middlebury, Vt.

[Most of our writers on this subject have rather seemed to be inclined to the opinion that shaking on foundation or on starters was better than shaking on combs fully drawn out; from the arguments you present it would seem as if the combs, at least in your locality, and under the circumstances you mention, had a decided advantage. While we have had a good many articles on forced swarms, I should like to hear from those who have tested the plan on this one question of foundation or no foundation. Let us get together our combined experience and learn the truth in the matter. The evidence so far is overwhelmingly to the effect

that forced, shaken, brushed, or scooped swarms pay; that in the majority of instances they are as good as natural swarms; that they put swarming at a time when the apiarist can best take care of it. All these points are fully proven—that is, if evidence counts for anything. But the question of foundation or empty combs is one that has not been thoroughly touched on. Let us hear from those who are informed in the matter.—ED.]

BRUSHED SWARMS.

Conditions under which Brushing Does Not Stop Swarming; When and When Not to Brush; Half-Sheets Better than Starters.

BY J. E. CHAMBERS.

On page 854 you say in your review of the brushed-swarm symposium, first, that swarming can be controlled at outyards with small brood-chambers, when run for comb honey; second, that a brushed swarm might be stronger than a natural one, and even produce more comb honey; third, that starters are as good as full sheets of foundation; that worker comb will be built as fast as the queen can use it, if the supers are put on soon enough; and if drone comb is built it can be cut out and melted up; and that some believe that wax can be produced simultaneously with comb honey, and at a profit.

In regard to the first, in this climate swarming can be controlled with certainty, and I believe it can be more certainly made a success in more northern climates, where the flow is shorter. I have never had a swarm issue from one of these brushed colonies. However, there are conditions under which swarming will be apt to result. If a strong colony is brushed at a time when there is a very light flow, and a second drive is made in seven or eight days, the great number of young bees already under the cell-building impulse may induce the colony to swarm; but if there is a good flow, no swarming will result. The bees enter the supers and begin comb-building at once, which always has a strong tendency to prevent swarming. In some localities it might be an advantage to put one drawn comb in the hive to catch the pollen. With me it is never needed, for the bees draw the foundation sufficiently to hold both honey and pollen within from four to six hours. Great judgment and skill are required in order to get the best results with the brushed method. I never try to produce comb honey when there is a light flow; for, as I said above, the secret of the whole process is to get them to work at once, and with a vim and hustle, which goes far toward counterbalancing the swarming impulse. If it is desirable to control swarming during a slow flow it can generally be done in this way: Brush the colony the same as in the first process, but take only half of the bees. As soon as the queenless part have cells seal-

ed, destroy every one and run all the young bees in with the swarm; remove the old queen with one comb and the adhering bees, and place her among the remaining hatching brood in the old hive. When cells are started in the swarm hive, destroy them and pile the supers on the old hive. There will be no swarming, as most of the bees will have become field bees, and the combs will now be empty to give room for the queen again. This involves much work, and, of course, is objectionable on that score; however, brushing alone will always stop the swarming fever when there is a good flow; otherwise, not. And, again, the process of brushing does not put the bees in the condition where they feel that they have swarmed, except when they would have swarmed in a few days anyhow.

Second, a brushed swarm under proper conditions will always be stronger than a natural swarm, and gather more honey, because most of the working force will go with it, and it is again strengthened by a second drive. The queen is in better condition to begin her laying duties; the combs are better filled with brood, and there is no storing in the brood-chamber. Many brushed colonies in my home yard this year have stored 64 pounds of section honey in 14 days, and the 10 shallow combs did not contain half a pound of honey when the supers were removed.

Third, with me starters are not as good as half-sheets of foundation, but do very well when foundation is scarce. In a shallow hive four-fifths of the comb is worker size of cell; and, while it is hardly profitable to produce wax and comb honey simultaneously, still the drone can be used, and is, I consider, no loss; yes, it is a fact that bees secrete a good deal of wax during a heavy flow, and in the brushed swarm it is all used, and to good advantage. But with all its great advantages and possibilities some seem not to have gotten the hang or knack of doing the work right, and I think the fault lies mostly with us fellows who have been familiar with the method for several years. We take it for granted too often that others know something of the *modus operandi*. Many fail to get good results because every little detail is not observed. We should be more explicit.

I will say, in closing, that all who try the brush-swarm method would do well to observe the following details very closely: First, don't brush unless it is very strong; second, don't brush unless there is a good flow, or to control the swarming fever, as perhaps you will have to do at times; third, be sure that the bees gorge themselves with honey; fourth, if you don't leave a few old bees in the old hive you must not shake out the thin unsealed honey, for the young bees use it as a substitute for water, and, of course, the force left will all be needed to nurse the brood; fifth, if you use any drawn comb in the supers, and none in the brood-chambers, you will catch some pollen. Unless an excluder is used, the queen will go

above and lay in the sections that contain drawn comb; sixth, don't use an excluder if you can avoid it, as it tends to discourage the bees from promptly entering the supers; seventh, have your hive level and shaded; eighth, be sure to reinforce the swarm with another drive from the old hive within seven days.

Vigo, Texas, Nov. 8.

THE NUCLEUS METHOD OF INCREASE VS. SHOOK SWARMS.

Shook Swarms Condemned.

BY HOMER H. HYDE.

Mr. Root:—I notice you call for expressions on the shook-swarm method of increase and controlling of swarming. I have had several years' experience in different localities in Texas, and my experience teaches me to condemn shook swarms. My reasons are that the old colony does not build up in time for the later flows of honey; and, second, the new colony is soon also weak from the fact that it is without hatching bees for about 24 days; and unless the queen is still very vigorous the new colony is seldom in the right condition to secure the best results from the later flows. Now having condemned shook swarms I shall describe the method of increase and swarm prevention that is yearly practiced in the apiaries of our company. First, the season before, if possible, we have a good number of extra brood-combs built out; next we see that all colonies have good prolific queens, and go into winter with plenty of honey. Brood-rearing here usually commences in earnest the latter part of February, and by the middle of March the colonies usually have their brood-nests about filled with brood. If honey is coming in (and it usually is) we decide about how much increase we want at each apiary and start cells accordingly. Just before these cells are ripe we return to each apiary, and from each strong colony that would be likely to swarm before April 10 we take two frames of bees and hatching brood, and insert in their places two of the empty combs carried over. We place these two frames of bees and brood on a new stand, and give them a ripe cell in a cell-protector, making as many new colonies (or nuclei as they really are at this time) as we wish increase at each apiary for the year. We return to each apiary in a week or ten days; and from all colonies showing indications of swarming we draw two or more frames of brood, inserting in their places empty combs or frames of foundation, taking the combs of brood and adding to the nuclei started. We continue this operation at each yard every week or ten days until the honey-flow opens up, which is usually about April 10. Our experience is, that once we have the colonies in the supers and at work, there will be very few that will care to swarm. Our object is to draw only

enough from the colonies to keep down their swarming until the honey-flow comes on.

When we start the nuclei we like to have about two empty combs to place on each side of the combs of brood, and the rest of the hive is filled with full sheets of foundation. If we give them proper attention we find that the majority of them have built out their combs, and are strong full colonies and ready for surplus work by the time our second honey-flow comes on, which is usually June 20.

Should any, however, fail to build out their combs and make good colonies by the end of the second flow they are then helped, and the unfinished work divided up with the old colonies so that all may be in fine shape for winter. Very often a nucleus started in the spring will store 50 lbs. or more surplus from the second flow, and they seldom if ever fail to make good colonies at the end of the second flow. Our old colonies having been kept together, and being in good shape, give us a large surplus from the first flow, at the end of which they are usually much weakened; but as we usually have a little honey coming in all the time they readily breed up and are good colonies for surplus from the second flow.

Now, I know that this system of work depends on the locality for its success, but very probably it can be modified to meet the demands of other localities of the same general nature. We know that for our locality it is far superior to any other method.

For our purpose we want very prolific queens in order that we may get a large force of bees early, and in order that the colonies may be kept strong throughout the year. We have found that one Langstroth body is not large enough to accommodate our queens during the breeding season, and we have built out for each colony a set of shallow combs in the 5½ (or Ideal) frames. In the spring, as soon as the queen has filled her frames below she will commence in these shallow supers; and as soon as they are well filled we alternate—that is, place the shallow cases on the bottom and the deep case on top, and then two or three weeks later change back, and so on until the honey-flow comes on, when the shallow case is raised and the empty case or cases placed between, causing work to commence in them immediately. If the colony is very strong we sometimes leave the two brood-cases together with the one containing the most unsealed larvæ on top next to the empty cases, the latter being baited with a frame from some other colony already at work. As soon as possible the shallow case is placed on top, and the bees allowed to fill it, which they will usually do. By the end of the flow we have one shallow case of extracted honey, and the remainder new built-out combs of honey which are cut out as bulk comb, and the extracted honey is used in putting it up, so that you might say the entire product is comb honey. Even if we were producing section honey in this locality I believe we would use the extra

shallow case of combs, for we can get a larger force of bees, get the bees in the sections better, and come nearer controlling swarming. As soon as the honey is taken off, the shallow case of combs is again placed next to the regular brood-chamber, and the queen allowed to fill it with brood, and we again alternate it with the regular case as before, so that we have our colonies strong again by the time the second flow comes on. After the second (or summer) flow the shallow cases of combs are left permanently next to the regular brood-chamber, and are ready to catch any slow flow of honey that may come between then and frost. However, we usually leave the cases about half full of honey so as to be sure of plenty for breeding purposes next spring. With good prolific queens and large brood-chambers consisting of one regular and one shallow case of combs, and then the proper manipulations at the proper time, we can just about double our yield of honey. That is, our yield is double what it would be if we used small brood-chambers of only one set of combs and did not give the proper manipulations, and did not use a prolific strain of bees. We have found that, for our locality, Holy Lands or Cyprians are the best bees for business by reason of their great prolificness.

Floresville, Texas.

[You object to forced swarms because the old colony does not build up in time for the later flows of honey, and because the new colony is also weak from the fact that it has no hatching bees. If you were following the plan of shaking or brushing advocated by some, in which all the hatching bees of the old colony are added to the new one at a second drive or shake, you would get a working force that is stronger than that of the natural swarm. I never yet saw a colony too strong for comb honey, provided it could be kept from swarming; and it strikes me that the plan of forcing, putting a second drive into a new swarm, gives us a force that is strong and yet not inclined to swarm.]

In your locality, as you manage it, you make the nucleus plan a success; but the average bee-keeper would so deplete his colonies to such an extent by robbing them of brood and bees that the plan would be more apt to be a failure so far as honey is concerned. In regard to all these matters we have to consider locality; and yours may be one where the forced plan will not give the results that it does with some.—Ed.]

FORCED SWARMS.

Different Ways to Form; the Special Advantages for Comb-Honey Production.

BY L. STACHELHAUSEN.

In my last article I said a few words about the history of brushed swarms, and how I was catching the idea of using such

swarms for the production of section honey. We have different ways to form swarms by forcing, which are exactly like natural swarms in every respect.

I. 1.—*For increase*.—Gravenhorst's "Feglinge."—I translated this by "brushed swarms" many years ago; nevertheless it is not important at all whether the bees are brushed or shaken from the combs. I generally use both manipulations. All the bees with the queen are brushed or shaken into a new hive on a new stand. The brood-combs remain on the old stand, and a large part of the old bees will return and care for the brood. A queen is introduced. The swarm can be used for section honey, the old colony for extracted honey. Here I will remark that, if the bees fill themselves with honey, and are kept in a swarm cluster for some time, only a few of the old bees will return to the old stand.

2.—Gravenhorst's "Fluglinge," alighted swarms.—A brood-comb with the queen is taken from a strong colony and set into a new hive; and this hive is filled with frames with starters; the young bees from another brood-frame are shaken into this hive, which is closed now and set on the old stand. The old hive with the remaining brood-combs is set on a new stand and a young queen from a nucleus is introduced.

3.—Gathered swarms. Take a swarm-box as described by H. Alley in his Handbook, or a somewhat larger nucleus-box, as recommended by Doolittle; shake bees into it from different colonies, as they may lie out on some hives, or from supers, or from brood-combs, etc. The box is set into a cellar or other dark place for about ten hours; now drop any queen, old or young, fertilized or unfertilized, in among the bees. She will be accepted, and in a short time the bees will form a cluster in the box, and at evening they can be transferred to a new hive on a new stand like a natural swarm.

II.—*For strengthening other colonies*.—A strong colony is shaken or brushed from all the brood-combs; the bees remain on the old stand; the brood-combs are used to strengthen some colonies in the yard which are weaker than the average.

III.—If some colonies are worked for the production of extracted honey alone, and can not be kept from swarming in any other way, during a good honey-flow, Gravenhorst recommended more than 20 years ago to brush the bees on empty combs and to use the brood-combs somewhere else.

IV.—We still have another way to form forced swarms. We make two artificial swarms in such a way that the brood-combs of both colonies together can be set on the old stand of one of these colonies. In 10 to 16 days afterward, this colony will cast an after-swarm naturally. This swarm can be formed artificially too with a young queen, as described above; has mostly young bees, and is quite like a good after-swarm.

To all these swarms we should give one comb of brood because the bees will quiet

themselves better. If starters only are given, this brood-comb should be removed the next day, because the swarm will build better combs and less drone comb without any brood. A sufficient space should be given at first, and, if contraction is desired, do it when the bees have commenced cell-building and some larvæ are in these cells. The different ways of forming forced swarms without brood have different advantages under different circumstances.

These artificial swarms can be used in different combinations. For instance, to prevent swarming in out-apiaries I use the following management, which Doolittle recommended some years ago: The strongest colonies are brushed or shaken on starters on the old stand. The brood-combs and a queen from a nucleus in a Miller cage, closed with candy, are set on the place of another strong colony, and this is set on a new stand. In this way swarming is prevented in too strong colonies.

For comb honey we need very strong swarms, so we can shake all the bees from two colonies into one hive and set this swarm on the stand from which it received the queen. The brood-combs of both colonies are set on the stand of the other colony, without the queen. With the queen, if she is a good one, and one or two brood-combs, we can form a nucleus. Ten days later this colony is brushed off, and the old or a young queen introduced. So we have two strong colonies which can be used for comb-honey production, and a number of combs containing capped brood, which can be used for quickly strengthening nuclei or other weak colonies.

If comb honey exclusively shall be produced we use the method recommended by me about two years ago. Another way, which I read in the *Progressive Bee-keeper*, and which is used in Colorado, is to unite automatically (see article of E. F. Atwater, in GLEANINGS for Oct. 15). It seems practicable to me; but I can't see, as yet, great advantages gained in comparison with using Heddon's plan. It is not necessary to discuss some other possible combinations.

Now a few words about the advantages of this management.

1. That a forced swarm, if correctly made, will work with about the same vigor as a natural swarm, is conceded by most writers who have tried them. Why this is so, and how the swarm should be formed, is fully explained by Gerstung's theory. It is a certain physiological condition of the bees which causes the swarming impulse, and this same condition must be incited in the forced swarm afterward.

2. That swarming can be practically prevented if we use *large* hives in the spring till the main honey-flow commences, and then bring the colony into the condition of a swarm, is proven for me sufficiently, as I used this method for many years in two out-apiaries, which I do not visit oftener than once every week, and sometimes not even as often as that.

3. I never could get better crops of comb honey than from strong swarms if I had them at just the right time. Other bee-keepers in other locations may get good crops of comb honey from old colonies in small or in large hives. I do not doubt this; but I never could do it. As we can make our swarms as strong as we like them, I am fully convinced that this method is the best for comb-honey production, in in my locality at least.

4. I have had the good luck to have no experience with foul brood as yet; but if the McEvoy treatment is a sure cure, as many bee-keepers report, there can be no doubt that, by reasonable use of forced swarming, foul brood can be held in check in an apiary, even if other colonies in the neighborhood should remain infected with that disease.

SPRAYING FRUIT-TREES.

Does Spraying do More Harm, as a Whole, than Good? When to Spray.

BY HARRY L. SMITH.

On page 845 Stenog takes a few extracts from an article on spraying which appears in the *American Bee Journal*. One of these extracts says, "Spraying really does more harm, as a whole, than it does good. I have worked at it, and I have studied it closely more than twenty years. It does some good, but that good is limited." I am sure that the editor of GLEANINGS will give room for the other side of the argument. I am not only a fruit-grower but an apiarist, on a small scale. So far as my experience goes, no orchardist can afford to be without bees in his orchard at blossoming time, on account of the benefits received from the better distribution of pollen.

If there is so much gained by having an abundance of bees in an orchard, then it is for the fruit-grower's interest to protect not only his own bees but those of his neighbors as well.

Spraying is used as a means of combating the various insect and fungous enemies of the orchard and garden crops. Nearly every mixture used in fighting these enemies is poisonous if taken internally in large enough quantities; consequently it stands to reason that, if these mixtures are forced into the blossoms, the bees that gather the nectar from these blossoms will get a greater or less quantity of the poisons, and that the bees or larvæ eating the honey made from this nectar will die.

But right here comes the point that it is entirely unnecessary to spray fruit-trees while in blossom. Dozens, I might say hundreds, of official tests made in this country go to prove that trees sprayed before the blossoms open, and again after the petals fall, receive greater benefit than those sprayed while in bloom. This applies to the prevention of apple scab and leaf blight, pear and plum leaf blight, peach-

leaf curl, and any other of the fungous diseases. For codling-moth of the apple it is far better to wait nearly a week after the petals have fallen than to spray while in bloom.

Mr. Jeffrey says, "It does some good, but that good is limited." Yes, that good is limited by the amount of care and intelligence used in making and applying the mixtures and by the study given to the proper conditions under which they should be applied. Like many of the operations in the apiary, spraying must be done at the proper time to be really profitable; and if done at that time it will be of great benefit to the fruit-grower and no detriment to his neighbors.

It seems to me that, rather than condemn the practice of spraying, and have only hard words for those who practice it, it would be better for apiarists to learn what the conditions are under which it should be carried on, and teach their neighbors how to do it properly, thus resulting in good feeling all around, and benefiting both parties.

East Dixfield, Me.

[While we admitted the statement that spraying really does more harm than good, from our friend Mr. Jeffrey, in so doing we did not mean to imply that we believe it ourselves. After all the evidence from experiment stations and private investigations that have come before us, it seems we must admit that it does a great deal of good—that is, when properly administered before and after blooming.—ED.]

WYOMING.

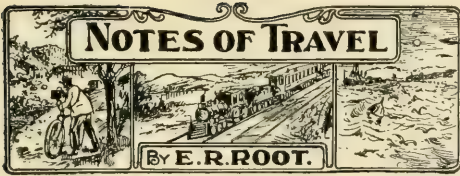
A Good Country for Bees.

BY E. L. RANNEY.

I have taken GLEANINGS for many years, and somehow I can not do without it, either when in the bee business or out of it. This is one of the greatest countries for bees I know of or have read about. My son began three years ago with four stands, and took that year something like 1000 lbs. of first-quality comb honey. The next year, from eight stands he took 2800 lbs. of the same. One stand that year made nearly 600 lbs. The last season was not as good, on account of a cold spring, and was cut short by an early freeze in September. Nevertheless we have taken 5200 lbs. of first quality, and, in fact, there is no second quality except from burr-combs, or from sections not filled and capped. The flavor is all the same, and comes almost entirely from sweet clover and alfalfa. The 200 lbs. is about half extracted, and was produced from 30 stands. The prices obtained have ranged from 7½ to 9 for extracted, and 10 to 15 for comb, all sold at home.

There is, to my knowledge, no disease, no moths, and very few difficulties to contend with in the management of bees here.

Lander, Wyoming, Nov. 1.



THROUGH THE ROCKIES OF COLORADO; THE GRAND CANYON OF THE GUNNISON; MARSHALL PASS; A DRIVE WITH W. L. PORTER, OF DENVER; THE UNIQUE HOUSE-APIARY OF THE RAUCHFUSS BROTHERS, NEAR DENVER.

Leaving Delta we continue on our journey, taking the narrow-gauge road through some of the most magnificent scenery in the United States—scenery, I am told, that would compare very favorably with any found in Switzerland. I had often pictured in my mind's eye how immense, how wonderful those grand canyons and those towering peaks would look; but no pen or camera can ever portray the magnificent grandeur of the things themselves. The peaks were higher and the canyons were more wonderfully grand than any thing that I had ever conceived of in my wildest day-dreams. The palisades of solid red granite in the passes as they towered above the railroad-track really seemed to kiss the very heavens. And such rainbow tinting! I had seen in the railroad offices some of the beautiful colored pictures of the passes in the canyons, and I had always supposed they were overdone of course. But, greatly to my surprise, nature has endowed the reality itself with all the colorings that we find in pictures, but more beautifully tinted than can ever be shown with the brush.

As our train, so tiny in comparison, crept along slowly at the very foot of the rocks that towered up perpendicularly thousands of feet—rocks that seemed as if they would fall the next minute on the puny works of man, we could see those colors change tint from the reflections of the sunlight that made one think he was having a glimpse of what heaven is like, for such beauty does not seem to be of earth.

While we were climbing up and up we could notice changes in vegetation according to the altitude. At an elevation of only 7000 feet at Sapinero, Col., I saw any quantity of the Rocky Mountain bee-plant that looked so

very much like the spider-plant that I was inclined to think it such at first. But no bees were there to gather its sweetness. On and on we kept climbing, often viewing the serpentine track below us that we had left but a few minutes before. Well do I remember the sensation as we went through Marshall Pass, between 10,000 and 11,000 feet high. I stepped out at the station, but there was a great difficulty of breathing, a dizziness in the head, and withal a general faintness. I staggered back into the car, quite content to keep quiet until we should get down from that height. On one occasion my pulse, ordinarily beating at 68, ran up to 130; but at this time it reached something over 100. Again the train started, and this time it was evident we were going down, down; and before night I was breathing much easier.

If space would permit I should like to tell you something about the Garden of the Gods, at Manitou; of the trip up Pike's Peak; how I essayed to go up on a donkey; of how the donkey snailed along until, in desperation, I got off the beast and declared



ALFALFA BLOSSOMS, LIFE SIZE.

I would not fool away time with such stupid slowness; how I afterward paid my five dollars like a little man, and went up on the cog steam road. But all these and more would be of little interest, perhaps, to the readers of a bee paper, and I should only fail in the attempt to describe what others have done before me far better than I am able to do it. Some of the bee-keeping friends after the Denver convention did take in some of this scenery, and I know they will join with me in saying that one who loves the beautiful and the wonderful will miss one of the greatest pleasures of this life if he does not somehow some time see the scenery of the Rockies.

But we hasten on to Denver, for we are now getting near our journey's end. We will stop to see only two or three local bee-keepers, for we have been already two months away from home, and we feel like hurrying back. A very urgent invitation from W. L. Porter caught me at Los Angeles; and knowing something of the kindly

Among the number was our old friend W. Whipple, whose picture I showed in these columns some time ago. He is a good bee-keeper, and a whole host at a convention. He reminds me a great deal of Dr. Miller. Staying long enough for a little chat we drove on and stopped to look at an out-apiary of Mr. Porter's, under the shadow of some beautiful overhanging willows. I took a photo of this; but, unfortunately, it was one of the very few ones that failed to develop into a satisfactory picture. As the alfalfa was very luxuriant I took a view of a part of one stalk, the top of it, life size, as seen on the preceding page.

It is very difficult to get a picture of a small flower and plant like this, for no picture will begin to show the beauty of coloring and delicacy of the flowers that are found in the real alfalfa-blossoms. But a photo will serve to give one a fair idea of the general proportion and arrangement of the flower-clusters. If you can imagine hundreds and hundreds of acres of violet-



THE RAUCHFUSS BROTHERS' APIARY AND HOUSE-APIARY NEAR DENVER.

hospitality extended by the Porter family I was glad to make another visit to those delightful people. I have already introduced the Porters to our readers, especially Mr. Porter himself, one of the most influential and extensive bee-keepers at Denver. I had previously visited this metropolis of the West in the fall or near winter; but now it was during midsummer, and I had a curiosity to note the weather conditions that prevail at that time of the year. I had seen the wonderful growth of alfalfa in Arizona, and was anxious to compare it in and around Denver. Mr. Porter very kindly gratified this wish by driving me some forty or fifty miles around the outskirts of the city, taking in some of the outyards, and giving me an opportunity to visit some of the local bee-keepers in his vicinity.

tinted blossoms, sprinkled through a strong foliage of dark thrifty green, you can get some idea of a genuine alfalfa-field as it grows in the irrigated portions of the West. But the alfalfa of Colorado was not quite so luxuriant and so large as that in Arizona; nor does it furnish as many cuttings of hay.

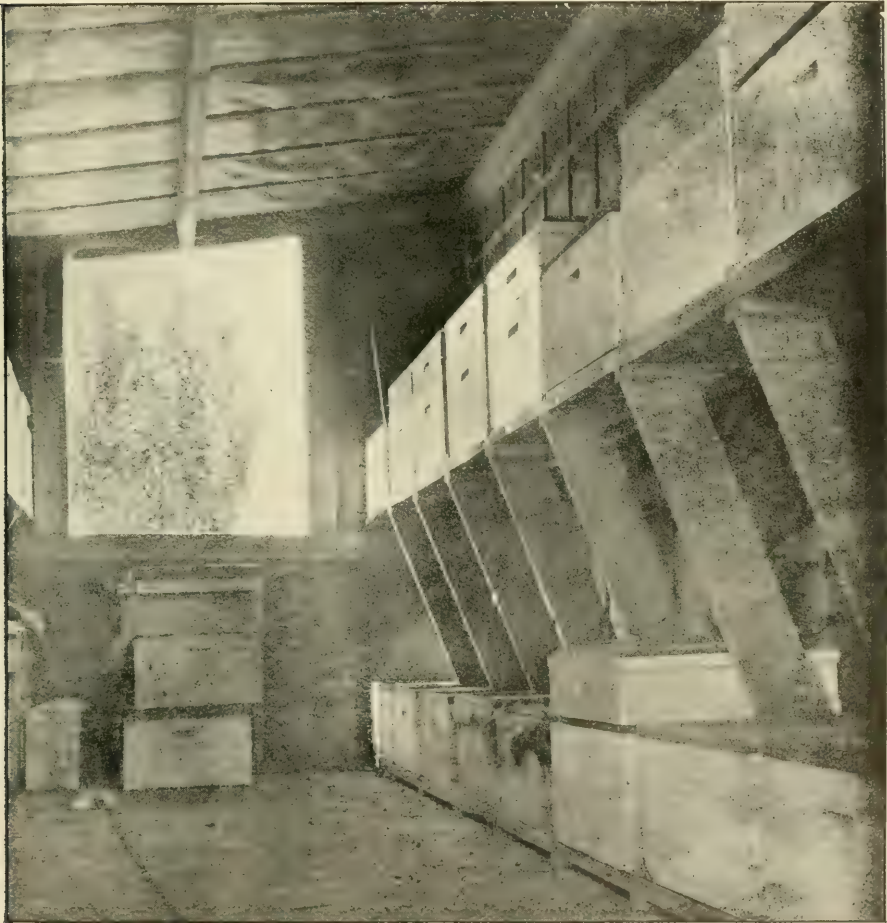
Before leaving Denver I called at one of the outyards of the Rauchfuss Brothers, near Denver, under the direct charge of Mr. Herman Rauchfuss. The feature of this apiary that struck me particularly was the house-apiary. As will be seen from the illustrations, an inside and outside view, it is very cheaply constructed, made of a single thickness of $\frac{3}{4}$ boards, battened on the outside and lined on the inside with building-paper; and yet, if I count correctly, it is large enough to hold about 35 colonies.

As will be seen from the interior view, the hives are the same as those used outdoors, and are arranged in two tiers, one above the other. A window at one end and a door at the other give plenty of ventilation and light. While a single thickness of boards lined inside with building paper would be sufficient for Colorado, it would be necessary in the Central and Northern States of the East to make the building double-walled, the space between packed with sawdust or some equally good packing material.

the illustration of the interior view. Hives that are built fast to the building have never given satisfactory results; and, moreover, the hives should be such that a colony from outdoors can be put inside, and *vice versa*.

The Rauchfuss Brothers are very successful bee-keepers, and are certainly up to date, save in one thing—they *will* cling to the old-style sections and separators.

Stopping in Denver for but a few days I took the train eastward again, this time go-



INTERIOR VIEW OF RAUCHFUSS BROTHERS' HOUSE-APIARY.

But the general construction and design of the building are excellent—among the best I have seen in all my travels; and in a locality subject to the depredations of thieves, or where land is scarce, I do not know of any better house-apiary than this.

In this connection it is, perhaps, proper to remember that all modern house-apiaries should be so designed as to receive the regular outdoor hives the same as shown in

ing as far as Des Moines, where I made our old friend Joseph Nysewander and wife a visit of one day. Our friend "Joe," as it will be remembered, was formerly a stenographer in the Root Co.'s office some 20 years ago. Next to the stenographer who is taking down these notes he was the first we ever had. I think I have already told our readers how Joe built up a large business—so large, indeed, that it was

necessary for him to call in an assistant—and this assistant was a stenographer, and as good as she was pretty; of how he and the stenographer formed a co-partnership—a partnership, I should judge, that is a very happy one. Mr. and Mrs. Joe have a delightful home, and I was entertained most royally by them.

Again I took the train, stopping off for an hour or two between trains to talk with Bro. York and compare notes.

And now, dear reader, my trip of 6000 miles is completed—on paper at least. In our next issue I begin a new series, and I will introduce to you H. G. Watson, of Nebraska, a rancher and bee-keeper who, I believe, has the largest area of alfalfa under cultivation of any one man in the world. Every thing he does was on a gigantic scale when we were visiting him at his home in Nebraska.

IN MEMORIAM OF DR. A. B. MASON.

His Life History.

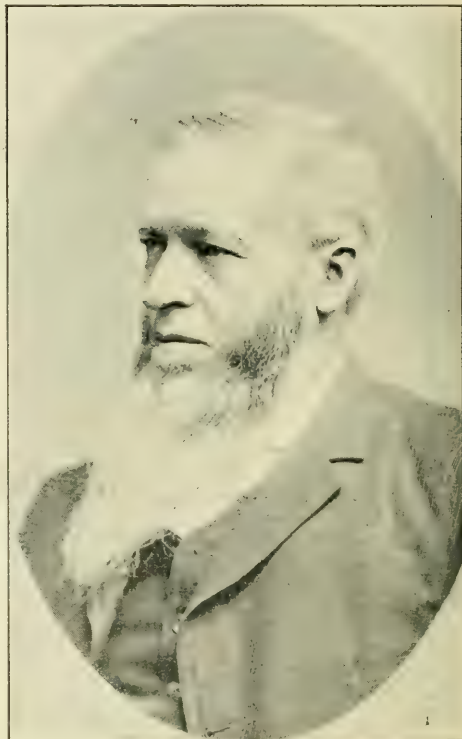
In our last issue we announced briefly the death of Dr. A. B. Mason, which occurred on Wednesday, Nov. 12, as a result of a serious burning from a natural-gas explosion. About a week before, the doctor had gone into the summer kitchen at his home with a lighted lamp. Natural gas was escaping from one of the pipes, with the result that a fearful explosion occurred, resulting in the tipping over of the lamp, causing a conflagration. The direct result of the explosion, and the effort to put out the fire, caused some serious burning. While the result of the accident seemed very serious, yet it was hoped that the doctor would survive; but the shock was too great for him, and he finally passed away on the morning of the 12th, at 7:55.

Dr. A. B. Mason, while never an extensive bee-keeper, was always actively interested in the general subject of apiculture. He attended many of the conventions, especially those national in character. He was for two terms President of the old North American Bee-keepers' Association, and for a number of terms continuously Secretary of what was subsequently called the National Bee-keepers' Association. His general fund of good humor, which bubbled over every now and then in a stray shot or a facetious remark while the sessions were in progress, did much to enliven the conventions, and he will be greatly missed at future meetings.

The good doctor was one of the original members of the Association. He drew up the first draft of the constitution for the Association after its reorganization a few years ago, and I don't think it too much to say that no man did more to advance its interests. Many a night, when he could be free from his professional duties of the day, he devoted himself to Association work clear on up till midnight. He loved the

Association, and was willing to sacrifice money and time.

Dr. A. B. Mason was born in the town of Wales, Erie Co., N. Y., Nov. 18, 1833. His father and maternal grandfather were soldiers in the war of 1812. Dr. M. was raised on a farm, and all six of his brothers are farmers. At 17 years of age he taught successfully a school in De Kalb Co., Ill., for \$14.00 a month, and "boarded around." At the close of this school he attended several terms at Beloit (Wisconsin) college. He then commenced the study of medicine, attending lectures during the winters of



DR. A. B. MASON.

1857 and 1858 at the University of Michigan, at Ann Arbor. In 1862 he moved to Waterloo, Ia., and, the practice of medicine not being to his taste, he adopted dentistry as his life profession, having studied it in connection with medicine. He was president of the Northern Iowa Dental Association for two years.

In his 19th year he united with the church, and was an earnest Christian worker. For years he was an active, if not the most active member of the church to which he belonged, being at one time superintendent of the Sabbath-school, church clerk, a trustee, and clerk of the board of trustees. He was a leader in Sabbath-school work at home and in adjoining counties. One

year he was secretary of eight different organizations, four of them religious. Dr. Mason has always been an earnest temperance worker, neither he nor any of his children using tea, coffee, tobacco, or liquor in any form.

In 1869 a brother left in his care two colonies of bees till convenient to move them. Watching these aroused an interest in bees, and, as usual, the way to bee-keeping in full was not long. In 1873, frequent and severe attacks of rheumatism obliged him to give up the office practice of dentistry, and he has since made a specialty of bee-keeping, making it a source of revenue.

In 1874 he moved to Ohio, where he has always been prominent in apicultural matters. Through his efforts the Tri-State Fair Association at Toledo was induced to offer premiums for the display of products of the apiary, and this display has increased in attractiveness each year since. He was appointed superintendent of the department the first year, and still holds the position. He was chosen superintendent of the Apiarian Department of the Ohio Centennial Exposition, held at Columbus in 1888. In 1882 and '83 his apiary of 75 colonies suffered from foul brood, nearly every colony being infested in the latter year; but he cured it and had no return of the disease.

substitute. Material from which phonograph-cylinders are made would not answer—it is too brittle. The least jar would crack it to pieces, and for extracting purposes it would be utterly useless. I do not know of another material that could possibly be used for foundation-making that would be suitable for bees, and at the same time stand a boiling temperature without injury. Of course, beeswax will stand a boiling temperature, but the combs would, of course, be melted, and the clarified product could be used again in making foundation. This is as far as we can go in using material over again.—ED.]

COLONY IN A CHIMNEY; HOW TO GET OUT.

I have found a swarm of black bees that went into a chimney last July, and that are now about four feet from the top. Can you suggest a way to get them out? I thought of trying to reach them with a spoon, such as is used for digging post-holes, but that would make a sticky mess, besides getting stung, etc. I also thought of waiting till spring, and, if they lived, to put a hive on the chimney, containing a few frames of brood and a queen-cell, with a bee-escape in the bottom. As the bees come up they could not get back.

Perhaps it would be better to leave them alone entirely; but if you can suggest a way, I should be pleased to hear it.

GEO. W. KEEZER.

Plaistow, N. H., Nov. 2.

[There is no feasible way of getting the bees out except by means of the post-hole shovel, and possibly destroying the whole colony in the attempt. I would blow a stream of smoke down the chimney, or better, perhaps, make a little smudge from beneath to get the bees in a quiet condition so they could be scooped out with the aforesaid shovel. It would not be practicable to put a hive on the chimney, containing two frames of brood and a queen-cell, for the purpose of inducing the bees to leave their old quarters four feet below.—ED.]

GETTING BEES TO FILL OUT POP-HOLE CELLS IN COMB HONEY; PROPORTION OF COMB TO EXTRACTED HONEY.

I have been running my apiary for comb honey, but I can not get the bees to fill out the sections nicely, as they leave pop-holes all along the sides. Some of my colonies filled 75 ideal sections. Now, if a colony will fill 50 1-lb. sections in a season, how much honey would that colony produce if it were extracted and the combs returned?

Beresford, Fla. C. S. GAELBREATH.

[It is a difficult matter to get bees to fill out every cell with honey and cap it over. Sometimes conditions are such that it is practically impossible to get a perfectly filled section. There are several essential conditions. One is an abundance of nectar in the fields, and a warm super—at



SUBSTITUTE FOR BEESWAX IN FOUNDATION.

Can you not produce some material to take the place of brood foundation—something perhaps like the material from which Thomas A. Edison makes his phonograph-records, that would be acceptable to bees? We want something that will not buckle, that will always insure straight combs—something that, when subjected to foul brood, could be boiled, and used again; that, when brood has hatched therefrom, the bee-built walls could be struck from, to be again replaced and built by the bees.

A. B. ANTHONY.

Sterling, Ill., Oct. 28, 1902.

[I am not sure that I quite understand your question. I do not know of any substitute to take the place of brood foundation other than combs; but possibly you refer to the *material* out of which the foundation is made. Mr. Weed, the inventor of the Weed new process, and ourselves, made exhaustive experiments in testing various kinds of waxes, including ceresin and paraffine wax; but there is not one of them that, in our opinion, would answer as even a poor

least one that has no leaks for hot air. There should be a large force of bees, and tiering up should not be pushed too far. To get sections nicely filled, do not put the second super under the first one when the first one is partly built out, but put second super on top. Too much forcing in the supers is apt to leave sections not perfectly finished. We will publish an article soon from Orel L. Hershiser that will cover this ground quite thoroughly, and suggest that you watch for it. As to the proportion of extracted to comb, if you run the hives for the former you might get from 25 to 100 per cent more honey. It is impossible to give any definite figure of proportion.—Ed.]

FRANCE ENDORSED FOR GENERAL MANAGER.

Friend Root and Brother Bee-keepers:—I am personally acquainted with Mr. N. E. France, of Platteville, Wis., having met him in my home, in my apiary, in our State conventions, and have done committee work with him before the legislature. I can conscientiously say we haven't a more gentlemanly and efficient man in our ranks for the position of General Manager of the National Bee-keepers' Association; and I take great pleasure in recommending him as such to all who do not know him, and urge upon you to give him your combined support at the coming election.

Hillsboro, Wis.

ELIAS FOX.

TOEPPERWEIN FOR DIRECTOR NATIONAL BEE-KEEPERS' ASSOCIATION.

Mr. Editor:—As the time draws nigh for the election of some new Directors for the National, I wish to make a nomination and present Texas' claim for a member on the Board of Directors. Texas is the largest State in the Union, and, according to the last census, produces more honey yearly than any other State. The industry is rapidly gaining ground; many beginners are going into the business on a large scale, and there is a constant emigration of bee-keepers here from other States. Recently our Association secured an annual appropriation from the State legislature, and we now have a well-equipped experiment apiary with a competent superintendent. Bees are not only being experimented with, but also different forage-plants; and last, but not least, there will be regular classes in bee-keeping at A. and M. College of Texas, where the apiary is located. Not alone will our claims be apparent to Texas, but as well to the entire South, which at present is without representation on your Board of Directors. Our Association members are members of the National, and we feel we need recognition.

Therefore I nominate Mr. Udo Toepperwein, of San Antonio. Mr. T. is a very popular man, an experienced bee-keeper, and a business man of experience. He is in every way fitted and able to discharge the duties of Director of the National, and I want the bee-keepers of Texas to ask your support for him in the coming election.

HOMER H. HYDE.

Floresville, Texas.

[Texas is a great bee State, and certainly should receive recognition at the hands of the Association. Mr. Toepperwein would be an excellent man for Director, acceptable alike to the Texas bee-keepers and to the membership of the Association, providing it could know how good a man he is for the position.—Ed.]

GOOD SEASON FOR HONEY IN TEXAS.

We have had a good season—better than usual. Dry weather, I think, cut the summer flow short in July; but we had a good flow of nectar in August and September. I took 2000 lbs. from 34 colonies, spring count; increased to 69; taken from one colony, new swarm, 125 lbs., all comb; average about 60 lbs., spring count.

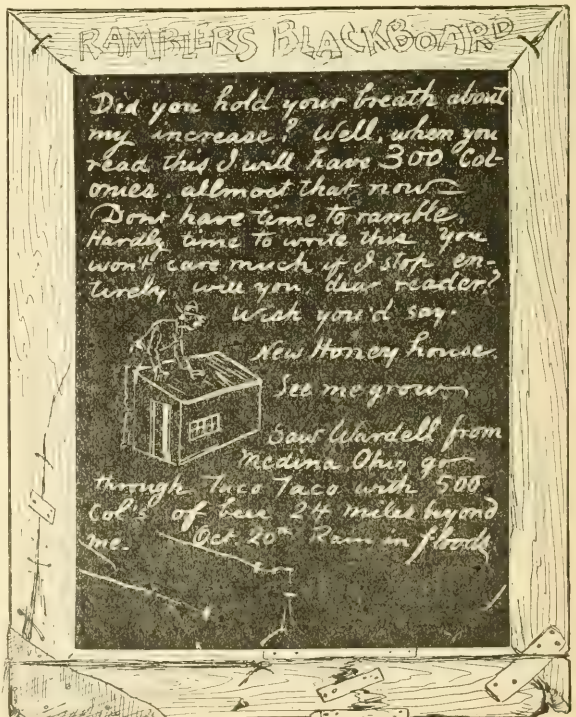
Centreville, Tex. W. W. LAWRENCE.

Please tell me if there is any duty on queen-bees to Canada.

W. HARMER.

Manistee, Mich., Nov. 3.

[There is no duty on queen-bees to Canada. Breeding-stock is made an exception.—Ed.]





Charity suffereth long, and is kind; charity envieth not; charity vaunteth not itself, is not puffed up, doth not behave itself unseemly, seeketh not her own, is not easily provoked, thinketh no evil; rejoiceth not in iniquity, but rejoiceth in the truth; beareth all things, believeth all things, endureth all things.—I. COR. 13: 4-7.

Just 21 years ago this month my Home Paper was in regard to my father's death. He was then 71 years old. As I sit down to dictate this Home Paper, my mother, 90 years old, has just been laid away to her rest. Mrs. Root and I were summoned by telegram on Sunday morning, Nov. 9, and we reached mother's bedside a little less than 48 hours before she breathed her last. She knew me when I called, but was too feeble to say very much. She had asked for me, and it was a satisfaction, evidently, to her to know that I was present with the rest of the children. While she gradually let go of earthly things she grasped on to heavenly things. She died of old age; and her descent down to the edge of the dark river was very gradual indeed. During her last moments, and after her death, we talked over things and occurrences that happened during her long and useful life. When I say *useful* I do not mean particularly that she did a great deal of hard muscular work; yet God knows she toiled with hand, feet, and brain, both early and late, until she was too old to work any more. It comes over me now, as it never did before, what an *untiring* worker mother was. We were a family of seven children, most of us born in a log cabin in the woods. By the way, I wonder if it is not the memory of that log cabin in the woods that makes me enjoy so intensely my recent experiences around that *other* cabin in the woods. Well, mother was up early and late. For a long time she built the fire and then called the children. Perhaps I should explain that, for quite a period in my childhood, my father was away from home most of the time. I do remember that the time came when I declared mother should no longer build the fire; and, oh how thankful I am that I took that task out of her hands cold winter mornings! And I did not have a very warm room, especially during zero weather, in which to build that fire. It was *not* as warm and comfortable as most of your homes; and, come to think about it, in the greater part of our homes nowadays there is no fire to build—natural gas, base burners, furnace in the basement, or something of that kind, keeps fire all night; and such arrangements are, no doubt, very pleasant and comfortable; but I very much doubt, dear friends, if the result in the end produces the good strong constitutions that come—well, let us say from living in a cabin in the woods, where zero weather reigns indoors, *in the sleeping-*

room, as well as outside. But I am not going to talk *health* just now. I wish to talk about the thought embodied in our text. If my mother's name were put in the place of "charity" in the verses I have chosen, it seems to me it would describe her exactly. No doubt thousands of you feel the same way about your mothers, and that is right. If it were not for these patient Christian mothers, the world would have been lost long ago.

One of the first things I can remember about my mother is her struggling against not only inconveniences but real difficulties and troubles, in a meek uncomplaining way. She never envied rich people. On the contrary she always *rejoiced* to see any of her neighbors getting ahead of us. I am sure this is true, dear reader, and I am sure of another thing: It is not a very common trait with humanity. Mother was never "puffed up." Why, those who knew her will laugh when they think of the thing. Our good pastor, in his funeral sermon, made a remark that I wanted to say amen to. But I was not the one to say it, and I believe it is not customary to say "amen" at funerals. The remark was something like this: "There was no *sham* about grandma Root, as everybody will testify who knew her." Sham! why, bless your heart, she could not even appreciate a joke. Father and most of the children most keenly appreciated jokes, and often used them to turn away unpleasantness; but mother, in her simple honest-heartedness could never see the use of jokes nor any thing in the line of make-believe.

"Seeketh not her own." Why, there was never any thing she called her own. Father used to have one drawer in his bureau for his important papers; and woe to the child or anybody else who meddled with "pa's drawer." But mother had no drawer that I can remember. Every thing that belonged to mother belonged to *all* of us; and, no matter how freely we helped ourselves to what was hers, we were sure there would not be any scolding. I was going to say she did not know how to scold, but that is not quite true. If we took any thing that belonged to *somebody else* she could straighten us out as well as father.

"Thinketh no evil." If she had one characteristic above all others it was this; and not only this, but it was hard work to make her believe that *anybody* was deliberately bad. She took it for granted at the outset that every one she met was a good man or woman or child; and it was very hard to convince her otherwise. There used to be a Jew peddler who came around our neighborhood; and after he had fleeced the people right and left until he was notorious, he stopped one day to talk with mother. After he went away she said, before the rest of the family:

"Why, what a good man that old Mr. P. is!"

At this we children, father included, burst out laughing at her innocent, honest

simplicity. When we attempted to tell her of his tricks and hypocrisy she still insisted that there was a mistake somewhere, and that he *was* a good man. We all considered it the best joke of the season. Well, as I look back and think it over I recognize that it was so all through her life; and it was her privilege, if I may so call it, to talk with some of the wickedest men (and women too) that can be found in any community. When she talked with them she believed they were good, and meant to do right, and I honestly believe they *did* mean to do better and be honest and true, at least while they talked with mother Root. Nay, more than that: I believe the glimpse they got of her true honest Christian life was such that they were *ever after* better men and women for having had just one little talk with one who so emphatically all through her long life "thought no evil." I hardly need say that she never rejoiced in iniquity. She was sorry for everybody in misfortune. An old neighbor who lived with her before I can remember said to me the day of her funeral that in those early days in the woods, when they had sickness and other calamities, and were just about discouraged, her bright hopefulness was worth more to them than the doctor and his medicine. Her help was not words only. While she explained to them that things might be worse, and how they could go to work to make them better, she took off her things and went to work with hands, feet, and brain—yes, and with a loving heart.

When I was between thirty and forty years of age I ran across a part of a text that somebody had painted on the fence—"Love ye your enemies," etc. It seemed to me a pretty hard task—too great for average humanity. I talked with mother about it, and I told her that I honestly believed that *that* text came from heaven—that it was above earth and earthly things. I was an unbeliever at that time; but I knew and *recognized* that it was not a hard task for *her* to love her enemies and "do good" to those who hated her. Why, come to think about it, there was not *anybody* who "hated" her. In her whole life of ninety years I can not now call to mind a single person who hated my mother. There are quite a number who hate A. I. Root; and from what I know of the chap I can not say I blame them very much. Perhaps if mother had tried to run a big factory and publish a bee journal it might have been different; but God did not call her to do that work. He called her to bring up the seven children so that they would be better fitted for work of this kind; and she did *her* part well. No matter what the result has been, she certainly did her part in the work. I think I can say truthfully that whatever there has been good and helpful about these Home Papers that have been going on now for 27 years is due largely to the teachings and instructions I got from my mother. She demonstrated and *proved* right before my very eyes the truthfulness of Scripture

texts. If I had not caught on to some of her grand precepts I should have been dull and stupid; and may God be praised that, through the dear Savior's help, I have been instrumental in pointing *the world* to the unexplored regions that are to be found in weaving these grand truths into our everyday lives. I told you she did not rejoice in iniquity; but, oh how she *did* rejoice in the truth! When her mind began to fail, and she lost interest in the affairs of life, if one were to commence to tell her that somebody she knew had just united with the church, her whole sympathies would be aroused. She would wake up, as it were, and inquire for further particulars, and thank God that one more had been ushered into his kingdom.

My mother was hopeful. She was always looking for sunshine, and she always found it. It was fortunate in many respects that she was so, for father was given to depressed spells. He would have the "blues," and her mission seemed to be to brighten him up. Now, do not understand me that mother was all *right* and father all *wrong*. It is a good thing to have the blues sometimes. It is a good thing for the seven children that we had a *father* as well as a *mother*. Mother alone would have been inclined to let some of the young Roots get pretty wild. We were a stiff-necked lot. It the rest of the seven object to this I will change it and say that *I* was a stiff-necked youngster, and often needed punishment; and mother would have been so sure that I did not mean to be bad that she would not have punished me. Father believed in having every thing straight and square. He could not tolerate crookedness in deal any more than mother could tolerate sham; and when he found a man who was crooked he was always ready to put him in jail or publish him in the papers, and let everybody know about it. With mother to hold him back they two made a pretty good team, not only in the family but in the neighborhood.

Once on a time a stone mason owed father some money, and he would not pay it. Father got hold of the mason's tools, and told him he could not have them till he paid him up. Mother said it was too bad for the poor man to lose a day's work because he could not get his tools; and she told father before he went away to his work that she would give the mason his tools if he came after them. Father hid them, and told her, as he went away, she might do so if she could find them. She found them buried in some barrels of wheat, and the mason went off to his work rejoicing. Sometimes it was a question as to which of the two was right—justice or mercy, as we might say. But both together they made a very useful couple in the affairs of life, even in those early days. In later years father had trouble about a line fence. Since his death it has transpired that he was right and his neighbors wrong. He dwelt on his wrongs so much about the line fence that

he wanted to withdraw from the church. I remember hearing him tell the pastor of the church that he would have withdrawn long before if it had not been for his wife. The pastor replied something like this:

"Dear brother Root, I am well aware that your good wife has pulled you through many troubles, and has succeeded pretty well in keeping you from breaking away, and getting out of the straight and narrow path; and through God's providence I expect that your good wife will eventually pull you through the pearly gates; and then her work so far as you are concerned will be done. Now be patient and follow her guidance, and do not let the enemy prevail against her."

The above are not the exact words, perhaps, but the substance of what was said; and it was her privilege to see him breathe his last, at peace with all the world and with God.

Lest I give you the impression that mother was always and under all circumstances of the non-resisting class I think I shall have to mention that, a few times in her life, she showed a spirit of war—that is, if that is what it should be called. Once she had something to do with a woman who was coolly and deliberately bad. This woman, if she had had an opportunity, would have led some of our family astray. Mother came out squarely for war. She showed a spirit no one ever suspected in her usually mild make-up; and in conversation with me afterward I was almost startled to hear her say that she sometimes thought that, where a woman of this kind had given herself wholly over to Satan, and made it her business in life, not only to ruin mankind, and lead our youth in the path to ruin, but to break up homes, the best thing that could be done with such women was to *burn them up*. You will remember that there are places in the Bible where it seems to teach as if the welfare of humanity sometimes required that God should bring swift destruction where there is no hope that the guilty parties would ever be any better.

Now, dear friends, lest I give you the impression that these peculiar traits I have mentioned were the result of birth, or of being "built that way," to use a common expression, let me tell you that she gave her childish heart into the Savior's keeping when she was but eleven years old.* Her mother was a devoted Christian; but I am sorry to say that her father was not a believer. He gave her no help in her Christian life; in fact, it was the other way. He was an upright, honest man; in fact, he often prided himself on being more fair in deal and upright in life than some of the professing Christians about him. If I am correct, he encouraged his daughter in go-

ing to neighborhood dances, and for a time she went, perhaps mostly to please him. But she very soon decided that the neighborhood dance was not the place for a Christian young woman, and I believe she told him so, and asked him to excuse her from going any more. During those early years, when books and papers were not as plentiful as now, her Bible was her almost constant companion. I have heard her tell about going into the fields with her Testament, and reading its precious passages by moonlight. Truly her "delight" was "in the law of the Lord."

When she was about sixteen years old she began to be beset with doubts, and she began to fear that she was not a Christian; and I have heard her tell many a time how earnestly she prayed over the matter, and asked God to give her plain evidence that would dispel all doubts along that line. That evidence was given; and all through her life she looked at it as something bordering on the miraculous. At any rate, it was so plain and clear that she never afterward doubted for one instant. Her faith never wavered.

I hope our readers will excuse me here for speaking a little of myself. I came so near dying when I was about three years old that a council of doctors said I would have to die—there was no help. The *doctors* gave me up; but *she* kept on praying; and when she pulled me through after a flickering life of many weeks she declared I was a child of promise, and held fast to the idea, during quite a period, at least, of *partial* skepticism during my early manhood, that I would be converted. I remember very distinctly her saying to me one day, when I was studying "Langstroth on the Hive and Honey-bee," that the time would come when I would study God's word with just as much interest and delight as I was then studying bees. Although we laughed at her unswerving faith she answered that it would certainly come. She did not know how soon, but she said something to the effect that, when God gave me back to life in answer to her prayers, some promise or assurance was given her that I would in some way teach Christ and him crucified. Poor mother! she watched and waited a good many years before her prayers were answered.

Mother's life is ended; but her faith and example will continue to make themselves felt, not only through her children but also through her children's children, for many a long year; and I think we can truthfully say of her, "Blessed are the dead who die in the Lord from henceforth: yea, saith the Spirit, that they may rest from their labors, and their works do follow them."

IS THE SALOON A BENEFIT TO A TOWN?

Quite a number of people nowadays claim that the saloon helps business, enables the citizens to build better sidewalks with the money they get from the saloon-keeper, etc.

* Let me emphasize this point a little more. If there is any credit, either in her life or mine, it belongs to the gospel of Christ Jesus, and not to either of us. She did not want praise, and I do not want praise. Give God the praise.

Here is a nut for such people to crack: In advertising a town it is quite customary to say, of late (and they almost always put it first and foremost), "We have no saloons;" and then they tell about the churches, schools, manufactories, etc. But did anybody ever have the cheek—real-estate agent or anybody else—to urge people to come and live there *because* they had—well, say a goodly number of saloons? How would it look to say something like this? "We already have a population of 5000; new houses are going up all the time. We have five saloons, all doing a flourishing business, and we expect several more soon." Did you ever see advertisements of that kind? If not, why not?



GROWING LETTUCE UNDER GLASS.

As this is getting to be a great industry, especially during the dull months of the year that are now before us, I have decided to go over it briefly, giving all the latest methods and improvements I know of up to date. It can be grown almost anywhere and under almost any circumstances. You can start in the business with very little capital; and I honestly believe you can find a market for it anywhere on the face of the earth—that is, where there are people who have money to spare for such luxuries. Of course, the vicinity of towns and cities would give us more convenient access to more such people. If you grow the lettuce a market can be worked up for it; for a taste for it is, at least to some extent, an acquired one. If it were sold simply because it is a fashion, I do not think I should feel like encouraging it very much; but lettuce, celery, and perhaps we might add cabbage, are very often conducive to health—at least during the winter months. One who has been deprived of these succulent vegetables will feel a craving for them; and to preserve health this craving should be satisfied. Even domestic animals show this. When your hens stop laying in the winter, and nothing seems to start them, lettuce will do it every time; and if you have never witnessed the way a lot of fowls will run and fight for a lettuce-leaf when they have been cut off for some time from green food, it may be worth while for you to try the experiment. It reminds me of my description of the way Mr. Hilbert's chickens chased after angleworms; and I verily believe it would pay to grow lettuce under glass for poultry alone. At any rate, when you grow it for market be sure to save all outside leaves not suitable for market, and give to the chickens.

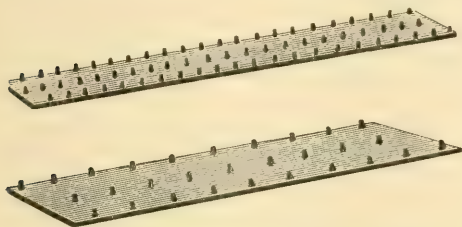
For growing lettuce or almost any thing else under glass, you need all the sunshine that it is possible to get, especially during

the winter months. Get away from the shadow of buildings, and place your sashes or greenhouses so they will catch the first rays of the rising sun and the last rays at night. On this account I greatly favor having a part of the glass slope toward the east, another part toward the south, and another part toward the west. You will notice the little greenhouse I have recommended and built on this plan—see page 27, GLEANINGS for 1900. After you have got some glass-covered beds, a greenhouse, hot-beds, cold-frames, or any thing of the sort, you are then ready to sow the seed. In the Southern States, in the latitude of Tennessee and further south, I am told they grow beautiful lettuce without any artificial heat at all; and the same thing can be done as far north as Ohio providing that, when we have severe freezes, you could have your glass protected with some extra covering—straw mats or wooden covers, sheeting, and the like. In this case you could not get lettuce fit for market before spring; but by having some heating manure under the beds you can grow very nice lettuce in February—yes, even in January. Banking up around the sides of the beds with stable manure will also help. Where you have a warm room, especially where there is furnace heat kept going every night, you can start lettuce-plants very well in a south window. Of course, they are inclined to grow spindling; and unless you turn the boxes around they will lean over toward the light.

The material for starting seed should be largely sand or sandy loam. Eugene Davis grows his seedlings in pure sand in order to avoid disease; but I would mix the sand with some muck from the swamps, putting in a goodly quantity of old well-rotted stable manure. Run it through a sieve so as to get it all well mixed and finely pulverized, then level off your bed or box with a board; then scatter the lettuce-seeds over the surface so they will be about as near as you can get them, say half an inch apart each way. Then sift on some more of your compost until the seeds are about $\frac{1}{4}$ inch deep. Keep the temperature right—not too warm—and have the bed just wet enough and not too wet, and your seeds will be up very quickly. If they should trouble you by becoming too long and spindling, it can be remedied by getting your seed-bed nearer the glass, or getting more sunshine. It is true the long-legged plants will make good lettuce all right; but it is more trouble, and they do not seem to do as well. When the little plants get on their second leaves and begin crowding each other, then you must make room for them in a larger bed. Usually they are transplanted only once; but there is quite a saving in space by two or more transplantings. The first time I would put them out with a spacing-board like that figured on next page, so as to have them stand two or three inches apart.

The next time, let them come four or five

inches apart; and lastly they ought to be not nearer than eight inches from center to center. If you want to grow heads of lettuce weighing two or three pounds, they ought to stand at the last transplanting a foot apart each way. Where they mature at about eight inches apart they can easily be made to weigh a pound to the plant. In transplanting, if you wish to make a success of it, and have your plants move right along, just as if they had not been transplanted at all, take them up with some of the compost hanging to the roots. A teaspoon or a table-spoon makes a nice trowel for this purpose.



SPACING-BOARDS FOR TRANSPLANTING
GRAND RAPIDS LETTUCE.

The small one is for the first transplanting; the one with the pins further apart is for the second transplanting, and so on.

When the plants are very small, use the handle of the spoon; and when they are larger, take a little dirt with them, with the bowl of the spoon. When you begin operations you will probably have no trouble from the green fly; but after you get several crops on the same bed, the green fly will probably come in. I do not know where it comes from. If you grow the plants in a hot-bed or cold-frames, and can take the sashes clear off and can let the plants get a drenching rain occasionally, you will have no trouble from the green fly—at least I have always found this to be a perfect remedy. If you can not do this, cover the ground every time, before you transplant, with tobacco dust, say $\frac{1}{4}$ in. thick; and if the green fly should still get on your plants at any time, just cover the whole bed with tobacco dust, sprinkling it all over the leaves and down in between the plants, leaving it on about three days, then washing it off with a sprinkler. This will do it every time if you are thorough in your work. But if you once let the green fly get started, so they are all over the plants, and get down into the heart of them, you may find it a tough job. It is something of a trick to learn to grow lettuce under glass; and if you think you will be pretty sure to neglect them, perhaps you had better not start. You must not leave the sashes on and let the plants get too warm. The green fly is ever so much worse where the plants have been kept too warm; and on the other hand you must not leave the sashes off and let the young plants freeze. Lettuce, when grown under a low temperature, will stand quite a little freeze. It may look as if it were all killed; but it will come to life and

straighten up and be all right. But you had better not risk such treatment too many times. The plants will stand it once or twice, but they are apt to become discouraged.

Where every thing is managed right, you should be able to take a good crop from your beds every six weeks—that is, providing you put in some more plants in place of the crop you sell, just as soon as the ground is vacant. I like to see some new plants nicely set out in the bed within an hour after the old crop is taken off. It is expensive work to maintain every thing just right under glass; and none of the space should be wasted—not even a square foot, or you might say a square inch.

In regard to fertilizers, I know of nothing better than green stable manure. The complaint that raw manure produces too much foliage is all right for lettuce, for it is *foliage* we are after. Get your manure from the stables—if possible, without straw. If you can not get it without straw, sift the straw out of it. The best way would be to get some muck from the swamps, and use it for bedding. Put enough in the stables to catch every bit of the liquid manure. And, by the way, you want a stable with a cement floor. This is just what I have been making in our barn at the cabin in the woods. Keep this cement floor covered with plenty of dry muck, and you will have the best fertilizer in the world, for any purpose. Just mix it with some sand or sandy loam, when you put it in your beds under glass, and you will not want any thing else. Poultry manure dried, pulverize³, and sifted in with the soil, is also excellent for lettuce.

Now, friends, if I have not told you all about growing lettuce under glass, at least all you need to know until you get some practical experience, write me and I will tell you more—that is, if I can.

HUBBARD SQUASHES.

The hill back of the cabin in the woods runs up very high, and one side of it is so steep that my workmen said it was out of the question to try to plow it. We plowed all around the steep place, and then dug it over with mattocks. That was when we were clearing off last spring. I managed to plant my peach-trees right along that steep place; and we planted potatoes between the peach-trees except on this spot that was nearly perpendicular. Somebody suggested that Hubbard squashes would be a splendid thing to put among young peach-trees; and if planted midway between the trees the squash-plants would not be nearer than eight or ten feet from the trees; but the vines during hot weather shaded the ground so as to be almost like a mulch. So I planted Hubbard squashes midway between the trees. The fore part of the season was so cold and backward I did not expect to get a squash; but all at once, before I knew it, those squash-vines woke up and “got a move” on them. They went to the top of

the hill, climbed on the stumps, then went up over the log-heaps and down into the bicycle-path. One vine especially was so determined to run across the bicycle-path that I had to turn its course every morning regularly. Finally, when it got to a big log-heap the vine climbed up on the heap and seemed satisfied. In a little while that steep side-hill was black—or, rather, dark-green—with squashes. I do not think there were over a dozen hills, but there was a pretty good-sized wagon-load of large hard squashes. The ground did not have a particle of manure; and it was up so high I did not think it looked particularly rich before we cleared off the weeds and small under-brush; but that wild-wood land, without any fertilizer whatever, gave a larger crop of squashes than I ever grew here in Medina by putting on stable manure until we could not see the ground. When I loaded my potatoes on the steamer at the dock I put on several sacks of squashes, and we have been retailing them at 2 cts. per lb. I did not bring the largest ones to Medina. They would not go into the sacks; but a squash that weighed 21 lbs. brought 42 cts. without any trouble.

Now, friends, I do not see how anybody wants any better business than growing Hubbard squashes at 2 cts. per lb. Years ago I sold hundreds of them at 3 cts. per lb. I do not know how much land there is in Leelanaw Co., Mich., as rich as that around my cabin; but it is mystery to me why people in that neighborhood do not grow squashes and a hundred other things, especially while that wild land is sold at such a small price per acre. I am sorry now I did not measure the ground where those squashes grew, and weigh the entire crop. But that is not all. The potatoes around them that were all covered with squash-vines gave an enormous yield also; so we had squashes and potatoes on the same ground. It seemed to me as if the shade of the great squash-leaves prevented the potatoes from blighting, and I am going to try it again another year. I will plant enough Hubbard squashes between my potatoes to shade the ground when the sun is hottest. Who has tried an experiment of this kind? Some of my best potatoes were where some tall forest-trees shaded the vines in the afternoon. Of course, this same piece of forest kept off the cold northwest winds, and this may have had something to do in protecting them from blight.



As a rule I have enjoyed better health during the past summer than I have before for years; in fact, I do not know that I was ever so strong and well, so full of energy,

in my life, even in my younger days. Sore throat, toothache, earache, and every other ache seem relegated to the past. I wore the lightest kind of summer clothing, the very thinnest underwear, dispensed with coat, and sometimes vest also. Yes, when the days were cloudy, and I had brisk hard work to do, I went bareheaded and *barefooted*. Some of you may suggest that regard for my looks should prevent me from carrying things too far. But I was out in the woods, and for many days at a time without seeing anybody unless it was my young man and Mrs. Root.

Well, during the cool weather the last part of October, some of my teeth began troubling me and I began to think I should have to go to the dentist. Mrs. Root suggested that my shoes were very thin for the weather we were having, and my feet were often damp, especially in the morning. I replied that I felt so well I really preferred to have my feet a little cold, and my corns felt better when they were a little damp or even wet. She suggested this had something to do with my toothache; but my feet were so very comfortable as they were I let them go for quite a spell. Finally I thought I would try and see what effect it would have on the toothache to put on some warmer stockings and heavy cork-soled shoes; and here is the point of my story. The toothache let up almost at once, without any help from the dentist. Later on, when the nights began to be *more* chilly, and we were having some rather cold rains, the toothache came back a little, and the old familiar sore throat kept coming up toward my ear, with a little touch of the earache. I was going without a coat most of this time. Mrs. Root suggested again that a warm coat in addition to my heavy shoes would remedy the trouble, and it did so, although I found a coat many times inconvenient, especially when I was bagging potatoes (see next issue). Now, you may say this is only plain common sense—something that everybody knows or ought to know—that, as cool weather comes on in the fall, we must dress warmer. But the point I wish to make is this: I was relieved of these aches and pains by dressing a little *warmer* than I felt inclined. With the brisk muscular exercise I was having every day I felt impatient of heavy clothing; but the remedy for these things that I had been so subject to, particularly during fall weather, and also in the spring, has been in keeping just a little warmer than I should prefer for comfort. When I got warmed up with my work I could throw off my coat and put on a lighter cap. But I found it quite necessary to put on my coat, thicker cap, etc., just as soon as I ceased doing heavy muscular work. Since I have returned home to Medina I have had these neuralgic pains again; but by putting on overshoes when I was out on the wet stone walks, and wearing my overcoat when there was a cold wind, I am keeping well, free from pain, happy, and exceedingly thankful. Now, if

these suggestions should be of some benefit to other elderly people like myself, I should be still more happy and thankful.

I would suggest, in closing, that you be especially careful about getting chilled by sitting down in a cold room—getting your feet so cold, for instance, that it takes a long time to get them warmed up after you get to bed. Getting chilled by walking out in the open air, or even out riding, does not seem to produce any bad result like sitting down in a room where there is no fire, to write letters, for instance, and then sitting there too long, thinking you will be through in just a few minutes more, etc.

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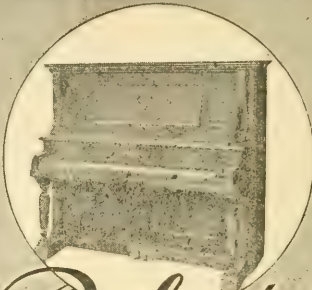
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share of it, if he wanted it, immediately upon delivery.

This subject is the keynote of the November Review. Plans and methods are freely discussed; the discussion will be continued in the December number, and a determined effort made to bring something practical out of the discussion.

If you are interested, if you wish to see what is being said and proposed, if you wish to help the journal taking the lead in this discussion, send \$1.00 for the Review for 1903, and all of the issues for 1902 will be sent *free*. That is, you can get the Review for 1902 and 1903 for only \$1.00, if you send it before the back numbers are exhausted.

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THE BUSINESS OUTLOOK.

We have never had as many orders to fill during the early fall as we have had this year. Our carload shipments of bee-keepers' supplies from August 1st to this date have been three times as many as during the same time last year, and we still have unfilled orders on our books for at least a dozen cases, with a number more in prospect within a few days. The wet season has made a profusion of white clover everywhere, and every indication points to a favorable season next year. Those dealers who have the storage room are wise in filling it up now when the goods may be had, rather than run the risk of waiting several weeks in the spring when a fresh supply is urgently needed. So far as we can ascertain, the available supply of dry white basswood in the hands of manufacturers, suitable for sections is much smaller than it was a year ago, and it will not be strange if there is a short supply of sections before the new lumber cut this winter is dry enough to use. Sections are not so good made from kiln-dried lumber, as they are more brittle.

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If there is any particular feature in which this edition is different from all others, it is in the fact that it is written to conform to nearly every locality in the United States. When the book was put out in 1878, the instructions were intended more particularly for those who live in the North-Central States. But the several trips of the reviser over various portions of the United States from time to time have led to some modifications here and there—particularly details of management. The subject of swarming, for instance, has been modified to fit conditions as they exist in Texas, California, and the far West as well as the Eastern and Central States of the North. Several new articles have been inserted. Among them is one on locality. This chapter goes into details showing how one State or province differs from another; and how methods of management must be varied to fit special conditions.

The subject of wax-presses has been thoroughly overhauled, showing rendering and pressing in the open air, in hot water, and in steam.

In the matter of wintering, again, special instructions are given for the southern and western bee-keeper, where wintering protection is not necessary, but where there is danger from starvation.

The biographical department has been largely revised, and new subjects have been added to take in some of those bee-keepers who have lately risen to prominence in the bee-keeping world.

The picture-gallery, while it has some old well-known views, has a number of new ones, particularly some in the West and South.

As usual the book has been enlarged, and, all together, we are putting out for 1903 an edition that is new from cover to cover, or is as nearly such as a book could be if it were written during the latter part of 1902 word for word, paragraph for paragraph throughout the entire book. The fact that it has been kept standing in type during all these years has made it possible to make changes anywhere at any time when necessary. Price in cloth, by mail, \$1.20; or clubbed with GLEANINGS one year, both postpaid, \$1.75.

CUBAN PROPERTY FOR SALE.

Owing to lack of time to care for his plantation, one of our customers has decided to sell his plantation of 250 acres and apiary of 450 colonies.

The apiary is in first-class order, well located, and paying well. The hives and appliances are almost entirely of Root's manufacture.

The place has plenty of fruit-trees and shade. Has a dairy of six fine Georgia cows, giving an abundance of milk for which there is a steady sale in Cardenas, a city of 24,000, only fifteen minutes drive from the place. Of other stock there is a yoke of oxen, 18 calves and heifers, and a good horse.

Water. There are two good wells of water, and plenty of royal palm-trees.

Location. This property is about 75 miles east of Havana, and 2 miles from Cardenas, on the railroad which has daily service with Havana. Cardenas is also reached by the Munson line of steamers semi-monthly from New York, also semi-monthly service from Mobile, and tri-weekly boats from Havana, so its shipping facilities are the best. You can reach New York in four days direct, or via Havana. Title clear and guaranteed. Full particulars to any one who means business. A fine opportunity for an American bee-keeper and fruit grower. Particulars may be had of The A. I. Root Co., Medina, Ohio.

Special Notices by A. I. Root.

WINTER OR EGYPTIAN ONION-SETS.

We have still a few bushels of these left. They can be planted at any time in the open air when the ground is not frozen. They are not only the hardiest onion known, but they are one of the hardiest plants. They will stand any amount of freezing and thawing, and still live and grow at a lower temperature than anything else I am acquainted with. They are also suitable for growing long white onions under glass. To produce these long white onions for bunching for salads, etc. they should be planted in beds where they can be banked up as fast as they grow. As fast as the shoots get to be an inch or two high you will want to hill them up with some soft swamp muck, and keep on filling up the box or bed as fast as they grow until you get them a foot long or more. They are put on the table in celery-glasses a good deal like celery. A great many people are very fond of these green onions in the winter time. Price of sets, 10 cts. per quart; peck, 50 cts.; bushel \$1.50. If wanted by mail, add 10 cts. per quart for postage and packing.

We have just put in pamphlet form material from back numbers of GLEANINGS, relative to onion growing. Better have it right away if you are going to grow onions to bunch up during winter. Price 5 cts.

Convention Notices.

Owing to a vote in Ontario on the liquor question, the dates of the annual meeting of the Ontario Bee-keepers' Association have been changed from Dec. 2, 3, and 4, to Dec. 16, 17, and 18, at Barrie, Streetsville, Can., Nov. 28.

W. COUSE, Sec.

The California State Bee-keepers' Association will hold its annual convention at the Chamber of Commerce, Los Angeles, on Dec. 16, 17, and 18, 1902 opening on Tuesday, Dec. 16, at 1:30 P. M. The convention is called in December to give opportunity to ask for additional legislation. A good program is expected; and a cordial invitation extended to all who are interested in the industry.

G. S. STUBBLEFIELD,
President.
J. F. MCINTYRE,
Secretary.

Ventura, Cal.

FOR SALE

Comb Extracted HONEY

in carlots or less. If in the market, state quantity wanted, and we will name you "lowest price." Samples of Extracted furnished on request. If you have any Comb or Extracted to ship, correspond with us.

Established 26 Years.

S. T. Fish & Co., Chicago, Illinois.

189 South Water Street.

Bees Wanted on Shares

Have You Idle Capital?

We are owners of 1000 colonies of bees, and want 1000 more to run on shares. We have the best location in the best part of Texas, and will give as references H. W. Wiseman & Co., bankers; Paul Neubauer, P. M., or any responsible business firm of Floresville or Hutto, Texas. We have heavy fall rains. Next year will be a big one for honey. We have the best assistants we can procure, and have been in the business since 1893. If you have as many as 250 colonies of bees ship them to us, pay the cost of location, and supply us the necessary equipment for honey production, and we will give them all the necessary attention, and give you one-half the honey. Bees must be all in either 8 or 10 frame Dovetailed or Langstroth hives. Let us explain to you more fully, therefore we solicit your correspondence.

The Hyde Bee Company, Floresville, Texas.

Bee-keepers,

We need your orders, and you need our goods, so let's trade. We have the very best goods, the largest stock in the State, the best place in the U. S. to ship from, and the very lowest prices consistent with first-class goods. Write to us and tell us your wants.

C. M. SCOTT & CO., INDIANAPOLIS, INDIANA.
1004 East Washington Street.

1200 FERRETS. All sizes; some trained; first-class stock. New price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**

TRY Phacelia Tanacetifolia. One ounce, 25 cents, in January, if ordered now; any quantity.
O. LUDORFF, Visalia, California.



When It's Up, It's Up

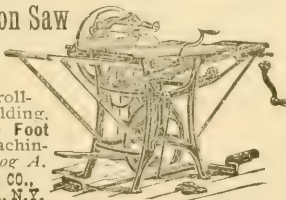
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For Ripping, Cross-cutting, Rabbeting, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line Foot and Hand Power machinery. Send for catalog A.

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.



Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must **SAY** you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Seven cents for sample package of our famous honey and menthol cough-drops.

R. H. SMITH, St. Thomas, Ontario, Canada.

WANTED.—A young man with a fair knowledge of apiculture to do general work on a small farm with an apiary of 150 stands.

JOHN S. McCURE, Las Cruces, N. M.

WANTED.—To exchange second-hand 60-lb. cans, boxed, good as new, at 40 cts. per case, for honey at market price.

G. L. BUCHANAN,
Holliday's Cove, West Virginia.

WANTED.—To sell for \$1200 cash, 325 hives of bees in 8 and 10 frame two-story Langstroth hives; four locations, with honey-houses, bee-sheds, extractors, tanks, 50 empty hives, foundation-mill, etc. Sales of honey and beeswax this year, \$1700; irrigated country; no failures. **WM. G. HEWES, Bakersfield, Cal.**

WANTED.—Extractor; Langstroth size. State price. **JAS. E. NIELD, Sioux Falls, South Dakota.**

WANTED.—A man to work at bees in Cuba, commencing April 1st. But little experience necessary. All questions gladly answered. Write at once to **F. L. POWERS, Artemisa, Cuba, W. I.**

WANTED.—Parties to furnish hives to stock with bees. Will give one-third.

C. BROWN, Newcastle, Calif.

WANTED.—To send you melilotus (sweet clover) seed, at 10c per 2-oz. package. Larger quantities quoted. **W. P. SMITH, Penn, Miss.**

WANTED.—Comb to render into wax; will pay cash. **A. P. LAWRENCE, Hickory Corners, Mich.**

WANTED.—To sell blackwalnuts at \$1.00 per bushel. **A. P. LAWRENCE, Hickory Corners, Mich.**

WANTED.—To exchange Angora goats for anything useful. **ED. W. COLE & Co., Kenton, Ohio.**

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & Co., Chicago, Ill.

WANTED.—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no drip honey-cases for plain Danz. and 4¼×4¼ sections; made for Pan-American. For prices, etc., address **OREL L. HERSHISER,** 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid. **O. H. HYATT, Shenandoah, Ia.**

WANTED.—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited. **TYLER BROS., Nicolaus, Cal.**

WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card. **N. A. KNAPP, Rochester, Ohio.**

WANTED.—We want to hear from those having choice comb honey to sell, stating quantity, quality, size, and style of sections, and how packed. If not yet packed for shipment state how soon you can have it ready, and the price asked delivered here or free on board at your place.

THE A. I. ROOT Co., Medina, Ohio.

WANTED.—Every apiarist to use our printed stationery. **Martin the Printer, Grand Ridge, Ill.**

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Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

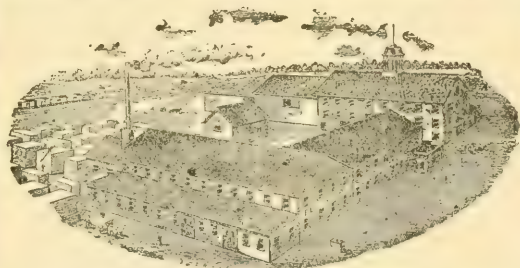
J. M. Jenkins,
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PAGE & LYON, New London, Wisconsin.

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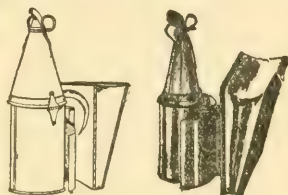
Kretchmer Mfg. Co., Box 60, Red Oak, Ia.

BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Suppers, etc. Write at once for a catalog.

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Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Ia.
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

KANSAS CITY.—Our market has changed quotations from p-und to case. Fancy white, per case of 24 sections, \$3.50; No. 1, \$3.40; No. 2 and amber, \$3.25. Extracted white, per lb, 7; amber, 6. Beeswax, 27@30.

C. C. CLEMONS & Co.,
Nov. 22. 306 Grand Ave., Kansas City, Mo.

SAN FRANCISCO.—Comb honey, 10@13. Extracted water-white, 6½@7; light amber, 6@6½; dark amber, 4@5. Beeswax 28. Buyers have visited all parts of the State this season. Producers have disposed of their honey at good prices for spot cash. The commission merchant has been dispensed with.

Nov. 22. E. H. SCHAEFFLE, Murphys, Calif.

CHICAGO.—There is no special change in the honey market. Prices remain as last quoted, and the volume of sales is not large. The weather is such as usually prevails at this season of the year, and the cold may induce people to buy more freely. Best lots of fancy white comb honey bring 16; No. 1 to choice, 15; off grades, 2 to 5c less, and not much demand for them. Extracted white, 7@8; amber, 6@7; southern, 5½@6. Beeswax, 30. R. A. BURNETT & Co.,
Dec. 8. 199 South Water St., Chicago, Ill.

NEW YORK.—Demand for honey not as brisk as it has been. We quote fancy, 15; No. 1, 13@14; buckwheat, 12@13½. Extracted, Southern, 4½@5½; N. Y. State, 5½@7½. Beeswax, 27.

Francis H. Leggett & Co.,
Dec. 8. Franklin and Varick Sts., New York.

MILWAUKEE.—The receipts of honey have been small during the past month, and the supply at present is not large. Yet as the demand is such that the supply seems inadequate, although some shipments of fancy comb and choice white and amber extracted will meet a healthy market, we can quote fancy 1 lb. sections 16@17; No. 1, 14@16. Extracted white, in barrels, kegs, pails, and cans, 8@9; amber 7@7½. Beeswax, 28@30. A. V. BISHOP & Co.,
Dec. 10. 119 Buffalo St., Milwaukee, Wis.

CINCINNATI.—The demand for comb honey is good, and prices are a little better, as the supply does not meet the wants. Extra water-white fancy is selling as high as 16 cents; other grades less, according to quality. Extracted is very active, and prices are a little better. Amber, 5½@5½; alfalfa, 6½@7½; white clover, 7½@8. Beeswax, 28. C. H. W. WEBER,
Dec. 8. 2146 Central Ave., Cincinnati, Ohio.

NEW YORK.—Demand for comb honey not so brisk, owing, we presume, to the fact that prices have been ruling higher. Supply, however, is moderate, and there is no other stock on the market. Prices remain unchanged. Fancy white, 16; No. 1, 14; No. 2, 12@13; buckwheat and amber, 11@13. Extracted white, 7½; light amber 6½@7; dark, 5½@6. Beeswax, in fair demand at 28@29. HILDRETH & SEGELIN,
Dec. 8. 265-7 Greenwich St., New York City.

DETROIT.—Fancy white comb, 16@17; No. 1 white, 15@16; dark and amber, 12@13. Extracted white, 7@8; dark and amber, 5½@6. Beeswax, 27@28.

Dec. 10. M. H. HUNT & SON, Bell Branch, Mich.

SCHENECTADY.—As is usually the case, the demand for comb honey is not quite as brisk near the holidays, but there is no change in prices, with ample stock of white clover on hand, but buckwheat very scarce. White clover, 14@16; buckwheat, 12½@13½; Extracted, light, 7@8; dark, 6½@7.

CHAS McCULLOCH,
Dec. 10. 523 State St., Schenectady, N. Y.

DENVER.—Demand for both comb and extracted honey light, and we do not expect any improvement until after the holidays. Fancy white comb brings \$3.50 per case of 24 sections; No. 1 white, \$3.10@3.25; No. 2, \$2.75. Extracted, 7½@8½ per lb. Beeswax, wanted at 22@26, according to color.

THE COLORADO HONEY PRODUCERS' ASS'N.,
Dec. 9. 1440 Market St., Denver, Col.

PHILADELPHIA.—Comb honey in good demand with good supply on hand. We quote fancy white, 16@17; No. 1, 15; amber, 14 buckwheat, 13@14. Extracted, white, 8; amber, 7. Beeswax, 30. We are producers of honey, and do not sell on commission.

WM. A. SELSER,
Dec. 9. 10 Vine St., Philadelphia, Pa.

FOR SALE.—Fine quality of extracted honey, both clover and sweet clover, in 60-lb. cans, at 8c; also bees in L. frames. Do not send local checks.

DR. C. L. PARKER, Sta. A., R. F. D., Syracuse, N. Y.

FOR SALE.—Light and buckwheat extracted honey in cans and kegs; sample, 8c.

I. J. STRINGHAM, 105 Park Pl., New York City.

FOR SALE.—White extracted honey from alfalfa in 60-lb. cans, at \$4.50 each; light amber honey mixed with Rocky Mountain bee-plant, fine flavor, \$4.20 each. Prices on small cans and pails on application. M. P. RHOADS, Box 216, Las Animas, Colo.

FOR SALE.—Extracted honey, from alfalfa, at 7½c for No. 1 select, 7c for No. 1, 6½c for No. 2; discount on 1000-lb. lots. Send for sample.

D. S. JENKINS, Las Animas, Col.

FOR SALE.—Alfalfa water-white honey, 60-lb. cans, two in a case, at 7½c; fancy basswood in 2½ lb. bbls., 8c; same in 60-lb. cans, two to a case, 9c. We buy and sell for cash only. E. R. PAHL & Co.,
294, 296 Broadway, Milwaukee, Wis.

WANTED.—Beeswax; highest market price paid.

Write for price list.
BACH, BECKER & Co., Chicago, Ill.

WANTED.—Honey and beeswax. Mail sample, and state price delivered here. C. H. W. WEBER,
2146, 2148 Central Ave., Cincinnati, Ohio.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHAM,
1318-1324 Union Avenue, Kansas City, Mo.



DR. C. C. MILLER.



Forty Years Among the Bees

By DR. C. C. MILLER.

The above is the title, and name of the author, of a new bee-book which will be ready some time in January, 1903, as it is now in the hands of the printers. It is a book that every bee-keeper in the world that can read English will want to own and read. It will contain over 300 pages, be bound in handsome cloth, printed on good book-paper, and illustrated with over 100 beautiful original half-tone pictures, taken by Dr. Miller himself. The book will show in detail how Dr. Miller does things with bees.

The first few pages of the new book are devoted to an interesting biographical sketch of Dr. Miller, which finally tells how he happened to get into bee-keeping. Seventeen years ago he wrote a small book, called, "A Year Among the Bees," but that little work has been out of print for a number of years. While some of the matter used in the former book is found in the new one, it all reads like a good new story of successful bee-keeping by one of the masters.

How to Get a copy of Dr. Miller's "Forty Years Among the Bees."

The price of this new book is \$1.00, post-paid; or, if taken with the WEEKLY American Bee Journal for one year, BOTH will be sent for \$1.75. We hope all who desire to accept this combination offer will do so AT ONCE, so as to have their subscriptions to the American Bee Journal begin with Jan. 1. The Bee Journal will be greater than ever in 1903. Every bee-keeper ought to have it regularly. Better order Dr. Miller's new book and the American Bee Journal NOW

Address the publishers,

GEORGE W. YORK & CO.,

144 & 146 East Erie Street, CHICAGO, ILL.

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Sample copy of the American Bee Journal and Catalog of Bee-Keepers' Supplies sent free on application. Address as above.



Every Chicken Man Needs a green bone cutter.

The Adam

alone is ball bearing, it cleans itself, it cannot become clogged or choked, it is fed at the pleasure of the operator. You will want to know of it. Send for our Illustrated Catalogue No. 39 before you buy. Sent Free.

W. J. ADAM, Joliet, Ills.



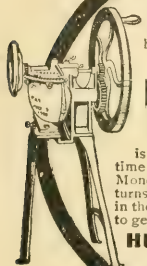
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and more than double your egg yield by feeding cut green bone, the greatest egg producer.

THE HUMPHREY OPEN HOPPER GREEN BONE and VEGETABLE CUTTER

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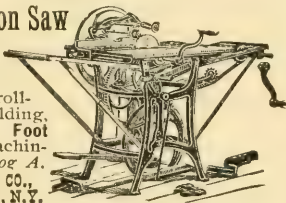
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To make cows pay, use Sharples Cream Separators. book "Business Dairying" and cat. 288 free. W. Chester Pa.

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Having increased my shop-room, put in power and a new set of machines, I am now producing a better article than ever, with unlimited capacity to meet orders. I use a process that produces every essential necessary to make it the best and most desirable in all respects. My process and automatic machines are my own inventions, which enable me to sell foundation, and WORK WAX INTO FOUNDATION FOR CASH, at prices that are the lowest. I make a specialty of working up Wholesale and Jobbing Lots of wax into foundation, for cash. If you have wax by the 100 lbs. or ton, let me hear from you. Catalog giving

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with prices and samples, free upon application. **BEESWAX WANTED.**

Cus. Dittmer,
Augusta, Wisconsin.

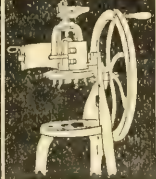
The Stearns Bone Cutter

cuts finest and easiest. Send for catalog and special trial offer free.

E. C. STEARNS & CO., Box 107 SYRACUSE, N. Y.



MANN'S NEW BONE CUTTER MAKES HENS PAY



YOU CAN GET LOTS OF EGGS

and have healthy fowls if you feed Green Cut Bone.
Mann's Latest Model Bone Cutter

is guaranteed to cut all bone and all adhering meat in 1 gristle, easier, faster and in better shape than any other type. Automatic self-regulating feed. Never clogs. **TEN DAYS' FREE TRIAL** on your own premises to prove our guarantee—no money in advance. Return at our expense if not satisfied. Isn't that better for you than to pay for a machine you never tried? Catalogue free. F. W. MANN CO., Box 37, Milford, Mass.

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Marshfield Manufacturing Company.

Our specialty is making SECTIONS and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

Marshfield Manufacturing Company, Marshfield, Wisconsin.

I. J. Stringham, New York City

105 Park Place.

Honey-jars! 1-lb. square jars, \$5.00 per gross; No. 25 jar, porcelain top, \$5.75 per gross; nickel cap, fancy, \$5.50 per gross. All clear flint glass. We ship from N. Y. City. Cartons, shipping-cases, every thing a bee-keeper uses. Apiaries are located at Glen Cove, Long Island. Catalog free.

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On all Cash Orders received before January 1, 1903, we will allow you a discount of 4 per cent; before April 1, 2 per cent. Send us a list of the goods you want and we will quote prices by return mail.

G. B. Lewis Company, Watertown, Wis.

Manufacturers of Bee-keepers' Supplies.

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Successor to Chas. F. Muth and A. Muth.

Central and Freeman Avenues.

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| 1-lb. sq. Standard, with cork, gr., | \$4.75 | 1-lb. sq. Standard, spring top, gr. | \$5.50 |
| 1/2 " " " " " " | 3.75 | 1-lb. Keystone, spring top, gross, | 5 25 |
| 5-oz. " " " " " " | 3.00 | 1-lb. Octagon, spring top, gross, | 5 25 |
| | | 3/4-lb. " " " " " " | 4.75 |

Seeds of Honey-plants

| | | | |
|--------------------------------------|-------|--------------------------------|------|
| 100 lbs. white sweet-scented clover, | \$10. | 100 lbs. White Dutch, | \$20 |
| 100 lbs. yellow " " " " | \$15 | 1 oz. Catnip seed, | 10c |
| 100 lbs. Alfalfa clover, | \$12 | 1 oz Rocky Mountain Bee-plant, | 15c |
| 100 lbs. Alsike clover, | \$15 | | |

GLEANINGS

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

BEES CULTURE

ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO.
\$1.00 PER YEAR MEDINA, OHIO

VOL. XXX.

DEC. 15, 1902.

No. 24



REFERRING to p. 980 and footnote, in this locality colonies will stand having two frames of brood and bees taken every week or ten days; but in too many cases they will swarm in spite of it. But then such depletion can not be begun here before June.

WHAT STENOGRAPHY SAYS, p. 973, reminds me that I've seen mention of non-intoxicating honey-drinks in foreign journals, but never any thing entirely clear on the subject. Can any one tell us how to make a good sparkling drink from honey that will leave one with a clear brain?

"WINTER lingers in the lap of spring" sometimes, but this time winter has furnished the lap for fall to linger in. Up to Dec. 6 I haven't given my horses a mouthful but what they could get in the pasture. "Starved them?" Not a bit of it. They're fat. [So in this locality all but the horses.—ED.]

FORCED SWARMS, with me, do not swarm out when a frame of brood is given them; but I have always taken the brood away after a day or a week, because they almost always start queen-cells on it. But I don't know for sure that they would swarm if the brood was left. I never tried leaving it permanently.—ED.]

I'M AFRAID we do not appreciate our mothers as we ought. When I read of the death of A. I. Root's mother, and recalled what a sweet old lady she was as I had personally known her, I said to myself, "With such a mother A. I. Root could hardly go entirely to the bad if he tried." And I'm glad he didn't try.

"IT IS HARD to resist the ministry of the woods. The sympathetic silence of the trees,

the aromatic airs that breathe through the shady spaces, the soft mingling of broken lights—these all combine to lay upon the spirit a soothing balm, and bring to the heart peace."—That's a beautiful bit from Ralph Connor's last story, "Glengarry School Days." I thought A. I. Root would like it.

THERE YOU GO again, Mr. Editor, p. 972, charging me with "chasing that phantom of a strictly non-swarming race." I never expect such a thing to be run down in my time, and spoke only of non-swarming, no matter what the race, which phantom I have some hopes of materializing in my time. [You may realize the phantom, but it will be a phantom ever fleeting, and not a reality.—ED.]

LINDEN seedlings by the hundred come up each spring under my row of trees that reaches to the public road, but I never see any thing of them after they are three or four inches high. I wonder what becomes of them. [I wonder if those colts of yours that browse around over your premises occasionally ever get under that row of trees. I know this, that stock, especially horses, are fond of very young basswoods. For that reason you will never find such trees in pasture or woods where cattle are allowed to remain. A. I. R. says: "Transplant them, doctor, into a bed of nice soil (as we do) before the colts get them."—ED.]

THE CHICAGO-NORTHWESTERN convention was good, reminding one of the old times. A score or more were from outside Illinois. Four bee editors were present, Messrs. Abbott, Hutchinson, Leahy, York. GLEANINGS was represented by Huber Root, and it was not disgraced thereby. There's good stuff in Huber. [Huber is assistant editor, for he is helping out your humble servant. Yes, indeed, there is good stuff in him, even if he is only a strapping kid of 19; but he is going away to complete his schooling, and then I shall be left high and dry again.—ED.]

"I HAVE NO FAITH that you will ever get an untinkered swarm that will not swarm," quoth ye editor, p. 972, of course meaning

that no untinkered colony shall swarm. I'm "arm-in-arm" with you there, Mr. Editor. I never expect that. But I do hope to reach some inexpensive plan of tinkering that shall take away all thought of swarming, and yet leave the full force of the colony intact, brood and all. "You haven't that hope?" Good-by. [You say you hope to reach some inexpensive plan of tinkering that will take the swarming idea out of a colony. What is the matter of tinkering by shaking or brushing? What more do you want, doctor?—ED.]

BROTHER A. I. ROOT, it's all right for you to go off into the woods "for a season" to rest up and get the dust and noise blown out of your brain by the balmy breezes of the wildwood; and when you get back home rested up, you'll do more good in the rest of the year than you would in the whole of the year without that season of abandon, to say nothing of the blessings you may take to those people up in the woods. How I do wish I, and especially that "same woman," could take advantage of your invitation. But, say—who knows? [Don't let that be an idle dream. Plan to make the dream materialize into fact. It will please Mr. and Mrs. A. I. R. You can leave Chicago by boat and actually go clear up to Bingham dock. The cost will be insignificant, the trip delightful, and those balmy woods upon high ground overlooking the deep blue bay—well, you will live longer too. Say—you *must* go.—ED.]

MR. EDITOR, you want to know, p. 972, if the cost of two tinkering will not be less than that of chasing a swarm to the top of an elm-tree. Now see here; please read again. We are talking about an "untinkered colony that *never thinks of swarming*;" How can it swarm when it never thinks of swarming? [But the colony you think never thinks of swarming may swarm just the same, and go to the top of that elm-tree. I will bet a cookey that is just where it will go. When it does, telegraph for me and I will come down and photograph you in the act of climbing up the tree; then when you get down "all tattered and torn" "and all forlorn," we will figure up how much that untinkered colony has saved in time, in pants, shirts, and the epidermis on the inside. If you have some secret by which you can *positively know* that some untinkered colony will never swarm, out with it. The Root Co. will give you a perpetual royalty on it as long as you live.—ED.]

A. I. ROOT says if he hasn't told us all about lettuce-raising, he'll tell us more (p. 993). Well, brother Root, about temperature. You say, "Keep the temperature right—not too warm." Now, that's clear and explicit in one direction, but you don't say whether the temperature may be too cold or not. Then some might want to know whether "not too warm" means not above 212° or not above 32°. Then couldn't you

give us a little hint as to what you mean when you say "just wet enough and not too wet"? [Friend M., I did think of giving directions according to the thermometer; but then I decided it would be best to let the novice in lettuce-growing learn by experiment what temperature was best rather than to lay down too many cast-iron rules. Eugene Davis said, "Make your greenhouse so it will be just right for brisk work in shirt-sleeves, not too hot nor too cold." I suppose a temperature of from 45 to 50 at night, and from 55 to 60 in the day time, would be about right; but it will do no particular harm if the temperature should go up to 70 (in the shade) at noon, and down to 40 at night. In regard to moisture, it is a great deal the same way; but you do not want *moisture* kept at exactly the same point. Let the beds go until they need water; then give the ground a thorough soaking. The beds must have drainage enough so the surplus water will get away. You see we want to imitate nature. Wait until the plants begin to *need* rain or water; then give them a good thorough drenching, just as the summer shower does. Sub-irrigation is probably the very best way of watering the lettuce; but it is more expensive to prepare the beds.—A. I. R.]

THE STARTLING announcement comes through *Le Rucher Belge* that bacillus alvei, the microbe of foul brood, is identical with *bacillus mesentericus vulgaris*, which is distributed throughout nature, especially in the vegetable creation. It is the miscreant which, under certain conditions, makes bread stringy like foul brood, and we are given the unwelcome information that it may even be found in healthy colonies of bees, ready under favorable conditions to set up business in the foul-brood line. No, you can't pooh-pooh it as the groundless assertion of some penny-a-liner. At the request of La Societe d'Apiculture du Bassin de la Meuse, investigations of foul brood were instituted at the laboratory of the Institute of Pathology and Bacteriology of the University of Liege, in Belgium, probably without any thought of unsettling the claim of bacillus alvei to be a specific bacillus found only in cases of foul brood, and the most searching tests were made before Dr. Ul. Lambotte was ready to say that bacillus alvei was an old acquaintance under a new name. It isn't a pleasant truth, but I'm afraid we'll have to swallow it. [This is an important piece of news. It may explain why foul brood apparently starts up spontaneously in some apiaries where the owners have never interchanged bees, queens, combs, or hives from another locality. If it is an old enemy under a new name, the sooner we know the fact, and the sooner we know its common habitat, the better it will be for us. I shall be glad to get hold of the full text of the article to which you refer. Send us a copy of the paper containing it, and we will give our readers a translation.—ED.]



Again the war-dogs growl and roar—
This time by Venezuela's shore;
Where will it end, the carnage dire,
If once be kindled war's fierce fire?



BULLETIN DE LA SOMME.

Here are a few French maxims that are good, even if some of them may be a little trite:

Bees alone can not fill our honey-vessels: they must be assisted by rational treatment.

To take from the hives is a pleasant business; but to give to them is often more profitable.

Bees are never packed too warm for winter if care has been taken to give them plenty of pure air.

A lack of water, bad food, and currents of air are the principal causes of uneasiness among bees during winter.

The two pounds of honey which you take in autumn from the necessary supply of your bees will cause you to lose double that amount in spring.

In every open place plant a tree: near every home establish an apiary.

For a cold, boil 30 grams (about an ounce) of flax seed in half a pint of water; strain it and add a little honey, the juice of two lemons, and an ounce of sugar. Stir and let it boil five minutes. Drink hot.

For sore throat, make a gargle composed of the following: Borate of soda, 62 troy grains; same of chlorate of potash; same of alum; clear honey, an ounce and a half. Apply this to the affected parts by means of a feather or fine pencil.

If the throat is but moderately sore and the ulceration light, an infusion of sage or rose leaves, or the two mixed, will effect a cure. A gargle composed of half a pint of the infusion of sage leaves and rose leaves, with two teaspoonfuls of vinegar and one of honey, is very efficacious in case of sore throat.

Mr. Kojewnikow, an eminent European authority, says the consumption of honey to produce a certain amount of wax is eight to one. The editor says he considers that too much. Mr. K. adduces this as a reason for using foundation when one uses movable frames.



PROGRESSIVE BEE-KEEPER.

F. L. Thompson says one of the needs of bee-literature is a digest of the things of value to be found in other bee-papers. He says:

Absolutely every thing that is of any value to bee-keepers at large must be included, and fairly set forth, whether the compiler thinks it of any value or not. He must, for the time being, see things from everybody's point of view.

A journal devoted to the matter of giving a digest of all other journals might be a good thing; but how can it be done in any journal now existing? To see things from everybody's point of view would require a mind that is omniscient. Mr. York well says in his journal, "How is a compiler to know a thing is of value if he does not *think* it of value?" Mr. Hasty and Dr. Miller are the best "digesters" we have in this line, and their work seems to be well received. But if one wishes to get all the bee-literature, why not take all the bee-journals?



HIVES PARTLY FILLED WITH COMBS; FEEDING BEES DURING WINTER, ETC.

"Good evening, Mr. Doolittle. I came over from Canada (by letter) to have a little talk with you about wintering bees where the colonies do not have their colonies full of comb. I saved quite a good many after and late swarms this year, and a part of these do not have their hives full of comb. What ought I to do with these to have them winter to the best advantage?"

"Where do you think of wintering them—in the cellar or out on the summer stands?"

"In the cellar under my house. In fact, I have celled them already. The temperature of this cellar generally keeps at from 40 to 45 degrees."

"Such a cellar should be a good place to winter them, and will tend to give you better success than outdoor wintering. But much depends upon the shape of the empty space. Are the bees in frame or box hives?"

"I have some in each. Would it make any difference regarding this matter of wintering as to the kind of hives used?"

"Yes. Where the bees are in frame hives, and they so built their combs that half of the frames were filled with comb while the other half was empty, or nearly so, the proper course would be to take out the empty frames and insert a division-board close up to the frames left."

"I had not thought that I could do that; but it looks reasonable that they would winter better thus fixed. But the most of these small colonies are in box hives."

"Where the bees are in box hives, or where comb is built in all of the frames about half way down, the middle frames containing more and the outside less, then it is better to leave them as they are, for they could not be helped much by any contraction of the hive which could be done."

"But could I not fill the empty space under the combs in some way?"

"Not very well; and if you could, it would not be best, for bees winter better with a vacant space under the combs, and for this reason they will be more apt to winter well than they would if fixed as you propose. However, I would advise that, in the future, the bees have only the number of frames, or amount of hive space they can fill, given them when they are hived; for then, in case of frame hives (and you should use no other), it would be easy to fill out the hive with frames from other hives, or contract with a division-board as best suited to your wants."

"I will try to heed the advice. But there is another part of this matter which I fear is more serious still. I do not think that any of them have sufficient stores for their use till spring. How can I feed them? I shall have to feed them sugar syrup, as I have no honey of any kind on hand."

"In the first place, this matter should have been looked after last fall, during October, or earlier if you do not have flowers which are likely to yield honey during September, for winter is a very poor time to feed bees."

"I do not doubt the truth of this; but I had so much to do that I did not get to it."

"It might have paid you better to have 'had so much to do with the bees' that you did not get to other things; but as this was not looked after when it should have been, we must meet the conditions as we find them. Therefore I would arrange the hives so I could inspect them every week, without disturbing them after the arranging, except to lift the covering over them, which can be done so gently that the bees will not notice it."

"What would this covering be?"

"Any piece of old blanket, carpet, or something of the kind that will keep in the heat and allow the moisture to pass through will answer, and can be turned up noiselessly, and without any jar to the hive."

"That is easy. Now how inspect?"

"To best inspect, take a sperm or wax candle with you into the cellar, as this is far better than a lamp for this purpose, as you can throw the light where you wish it without the heat affecting the bees. Having the candle held near the top of the hive, carefully raise the covering, and, as soon as raised, run the eyes over the tops of the combs; and as long as any sealed honey is seen near the bees, no feeding is necessary, and the bees should not be further disturbed. If no such honey is seen, then the bees must be fed."

"But suppose I see sealed honey, but it is not near the cluster of bees."

"If there is plenty of sealed honey on one side of the hive while the cluster of bees is on the other, the combs should be changed so the honey will be near the bees, fixing something over the tops of the frames under the covering, so that the bees can easily move over the tops of the frames on to this honey, else they may starve by failing to cross over or around to the honey."

"But suppose I see no sealed honey at all, and it becomes necessary to feed, how is this to be done?"

"Then you will remove one or two of the empty combs from the side of the hive furthest from the bees, so as to disturb them as little as possible, and also not to have live bees on the combs when they are taken to be filled with syrup."

"How about the syrup?"

"This should be of about the consistency of honey, and about blood-warm, so as to go into the cells easily, yet not melt the combs."

"How do you get it into the cells? When I have tried to fill combs, the syrup runs right over the tops of the cells instead of entering them."

"To get it into the cells, pour in a fine stream from a dipper, or some utensil having a spout, which should be held a foot or more above the comb so that the falling liquid will force the air out of the cells, thus filling them. If this is not done, the syrup will simply run over the tops of the cells and not fill them, just as you say."

"Many thanks for this kink. I now see why I failed. But won't the syrup spatter all over when we work thus?"

"To prevent spattering and daubing things, it is best to lay the comb flat down in some rather deep vessel so that the sides of this vessel will catch all that flies off, thus preventing all waste also, so that what is caught in this vessel can be used for filling other combs."

"When I have the combs filled, what then?"

"After filling as many combs as you wish, spread the frames of combs in the hive till you divide them where there are a few bees on the combs, at one side of the cluster, and place the combs of syrup in the empty space thus made, when all should be brought up to bee-space apart again."

"How much would you set in at a time?"

"Enough should be set in to last until spring, if possible, so as not to be often disturbing the bees."

"But won't the bees fly out while I am doing this?"

"If you set the candle a little ways from the bees, and work carefully, being especially careful not to breathe upon them, you will have no trouble—at least I do, not have any trouble—from their flying when handling in the cellar."

"But what about those in the box hives?"

"About all you can do with those is to guess at their condition; and if you guess they are short of stores, then turn the hives bottom side up, and pour some of the blood-warm syrup on the combs and bees. But if I had bees thus in box hives I would as soon risk them as to their starving as to risk their dying from the disturbance necessary to this way of feeding. The days of box hives are past, and I trust that you will not tolerate more of them later than next June, when you can transfer to frame hives the colonies which winter through."



THE index for 1902 will be sent only to those who call for it. It will be ready to send out by Jan. 1, 1903. We wish to determine how many actually value the index; so if you want one, be sure to drop us a postal.

How to tell whether old combs are foul-broody or not is explained by Mr. France in this issue, on page 1016. This is an important and valuable piece of information, and we had better paste it in our hats.

GLEANINGS will be in the future what it has been in the past years. We do not think it best to say what we shall do, but point with pride at the record of progress and improvement. We have the largest subscription-list that we have had in all our history, and it is still growing at a healthy, steady rate. We thank our friends, one and all, for their kind patronage, and shall try to give them their money's worth.

EARLY this fall we had nearly a thousand colonies of bees scattered in the home and out yards. Five hundred of these were sent to Cuba in October, so that now, after doubling up, there are about 300 left. Of this number 260 are wintered out-doors, and the rest are in the basement under the machine shop. The bees were put in about two weeks ago, and the indications are that they will come through as successfully as those of past years. We still believe in the doctrine of a large amount of ventilation for indoor bees, and that's what these bees are getting.

THE COMING ELECTION.

THE election of a General Manager and three Directors of the National Bee-keepers' Association will take place within a few days. The offices are important; and if ever there was a time when the office should seek the man, and not the man the office, it is in the election now upon us. Wise, competent, cool-headed men of experience — men who can allay factionalism and maintain the splendid record already made, should be selected. Whatever the outcome of the ballots, let us be broad enough to stand by the new officers, no matter whether they be of our choice and vote or not. Let us continue to make the Association a power for good and a terror to our arch enemy the adulterator. Let us forget old strifes, and begin 1903 with "malice toward none and charity for all" in the membership.

NATIONAL ORGANIZATION OF HONEY-PRODUCERS FOR THE CONTROL OF PRICES.

WHEN, two or three issues ago, I mentioned that the subject of commercial organization among bee-keepers was being talked of by my brother-editors, and signified my willingness to co-operate and help along any feasible plan that might offer some show of success, I did not dream that any one would construe such an endorsement as based on selfish motives. Quite indirectly I learn that it is being whispered that the Root Co. want "a finger in the pie so that they can squeeze the little fry, and dilute prices and monopolize the business."

The fact was, I took very little interest in the matter until I was asked by Bro. Hutchinson if I could not lend a hand through GLEANINGS in helping along a good thing. I promised to do so as soon as I could get time to look up what had been written. I did so, and gave my endorsement on p. 938, Nov. 1. The plan that I intended to favor was an organization made up of bee-keepers — one that should be entirely separated and distinct from any bee-paper or manufacturer of supplies, and such an organization I would favor. The Roots have too much business on hand already to think of trying to get a "finger in the pie" of some new business entailing more care and larger responsibilities. It seems almost silly to make a disclaimer of this kind; and yet because opposition is developing with the false idea that the Roots would try to run the whole thing, it seems necessary to say that our friends are laboring under a serious delusion. I can assure them that such interest as we can take in the proposed organization will be only to encourage it through these columns, and possibly take individual membership the same as any bee-keeper might do.

Let the good work go on, and the Root Co. will allow the free use of its columns for the promotion of any good organization along the lines proposed.

REPORT OF THE CHICAGO-NORTHWESTERN BEE-KEEPERS' CONVENTION, HELD IN CHICAGO, DEC. 3-5; AN INFORMAL PROGRAM CONSISTING OF A QUESTION-BOX; FOUL BROOD BY N. E. FRANCE; CO-OPERATION.

IN any business it is a good plan for the different men engaged in it to get together for the purpose of talking over items of especial interest, in order to become better acquainted. This seems to be very true in the bee business, and can be best carried out, I believe, in a convention where a question-box is the principal program. Each one feels that he is helping the other, and certainly all feel that they are helped.

Such a convention was the one held at Chicago, in December. I enjoyed every bit of it, and, like other "foreigners," was made to feel welcome and at home by those

most cordial of all men, the bee-keepers of that vicinity.

After the regular business, which, by the way, was carried on quickly and well, there was the opening of the question-box, which was the starting signal of an exciting race between experienced men. All took part—those who by long study and constant practice had become expert, and those who were feeling the first symptoms of the bee fever.

Only the answers to the principal questions will be given here, or, rather, those which would be of the most general interest. As in the convention itself, no effort will be made to classify the questions, but they will be taken up as they came.

Q.—Should colonies which produce only two or three pounds of honey be counted in estimating the average yield of an apiary?

This received as answer a most emphatic "yes!" from several.

Q.—If it is too late to empty out unfilled sections before winter, will they be suitable if left over until the next summer, to be filled full?

Some said that this could be done, that the bees would go right on with the work where it was left off, and that any which had solidified would be liquefied by the heat of the bees. But it was thought that, if this were done, there would be two kinds of honey in the same section. The general opinion was that all honey left over from the preceding year, if again given to the bees, would be taken out and the comb refilled, so it was considered best to feed back all partly filled sections or else first extract the honey from them before putting back on the hive.

In Pres. York's address he gave briefly some of the pressing needs of bee-keepers—the need of laws to prevent the spread of bee diseases in Illinois, and the need of a more perfect organization of the honey-producers for the purpose of selling honey. He said that this could most readily be accomplished by the bee-keeping public taking a more active interest in the National Association. Each ought to take into consideration the good of all—not simply of himself.

In the above address the matter of foul-brood laws for Illinois was first taken up and discussed. In the convention room there were six men who had foul brood in their apiaries. Those who attend a convention are usually the more intelligent people, looking out for the best things. If six intelligent men were troubled with foul-brood, how about the great mass of ignorant people who do not know about the different methods to keep away that disease? It is these ignorant people whom the foul-brood laws would help, and not so much those who keep up with the times. The Wisconsin bee-keepers have such a law, and are well satisfied with it. They say it is effective and well enforced. They urge all who have not foul-brood legislation in their own States, to make every possible

effort to obtain it without delay. Having clearly shown that they certainly ought to do something, the convention called on N. E. France to tell them how. He urged them to write to every bee-keeper in the State, and to write repeatedly, until there were answers by the basketful. He said that nothing could be done unless the whole mass of bee-keepers could be aroused in order to show that this thing is important. One man was heard to say that, if the whole time yet remaining could be spent on the subject of foul-brood legislation, it would be time well spent, and that no one could go home and say that he had not been benefited by the discussion. But a subject long continued loses in enthusiasm, and it afforded variety and rest to drop back on to the question-box.

Q.—Which are preferable—square or tall sections?

The usual arguments were given for each, which are so well known that they need not be given here. One could not help noticing this point—those arguments against the tall sections were made chiefly by men who had never used them, and who talked like this: "We have used the square section for a great many years, and it has always given satisfaction. Why make a change?" The different manufacturers present stated that the sales of the tall section were steadily increasing; and that those who used them once would generally use no other afterward.

Q.—If granulated sour honey is boiled, will it be fit to feed to bees?

No definite answer could be given to this. Some said they had done it with good results, and that it made good honey after the bees had put it in the comb. However, the general opinion was that it did not pay, because the best honey is none too good for feeding back, especially for winter.

Q.—Is spraying fruit-trees while in full bloom a crime against bee-keepers?

Only in States where there is a law against it. But it is always morally wrong. Any kind of moisture on the blossom is detrimental to the pollen, the germ; therefore some say that dry poison will not injure. But this only blows off, and will not destroy what it is intended to, because that which it ought to kill has not yet come into existence.

Q.—Is pickled brood ever ropy?

It will, perhaps, string a very little, but never to the extent of foul brood. Pickled brood is not contagious.

Such a flood of questions arose here that they were all deferred to the evening session, when N. E. France would answer them all in his talk on foul brood.

MR. FRANCE'S TALK ON FOUL BROOD.

He started out by saying that pickled, chilled, or starved brood, when dried, never sticks to the sides of the cell, but is loose, and is easily carried out by the bees. Foul brood, when dried down to a mere black scale, is always so immovably fastened to

the sides of the cell, that no known medical treatment can ever get it off. This black scale will hold the disease germ for years. In one instance an apiary was found to have foul brood. No explanation of the cause could be given until it was found that some old combs had been used which had been in a foul-broody apiary eight years before, and which had been stored away in a barn since that time. The cells were examined, and in many of them was found the peculiar black scale of the long dried brood. Honey or pollen stored in cells having this dried diseased brood, will contain the foul-brood germ; and when fed to the growing larvæ it spreads the disease. In the case of robber bees, the germs are carried throughout the apiary. Hence foul brood is contagious because of carelessness.

No degree of ropiness of the diseased brood can be given, because it depends entirely upon the season and age of the brood. In cool weather the mass will be cooled and thickened, therefore the ropiness depends also upon the weather.

In visiting a supposed foul-broody apiary, look first at the weaker colonies, because they will be the ones infected first. There may be no odor about the hive; but by taking out a frame the sunken cappings may be seen, the brown ropy mass of diseased brood, or perhaps only the flattened scale of very dark color. When the odor is present it resembles that of an old unused glue-pot.

To cure, shake the bees into empty bodies; screen the entrances and let them starve for about 48 hours so that every particle of diseased honey may be consumed. Next give them full sheets of foundation. When the hives are screened, place them in a cool place and give the bees a little water. Generally it is just as well to narrow down the entrance instead of screening it.

Black brood has somewhat the odor of sour apples, and has a tendency to dissolve the wax of the comb.

A queen from a foul-brood colony, if sent through the mails, will not infect the colony to which she is introduced if the mailing-cage is burned and the accompanying bees killed.

Foul-brood germs do not float in the air, but are carried by robber bees.

Honey from a diseased colony is safe for people to use, though not desirable. If it is thoroughly boiled, and boiled long enough, it will be safe to feed back to bees. Just bringing the surface to a boil will not answer. This rule, however, is not safe for the average person to follow. Better err on the safe side, and not feed back any such honey.

Foundation made from old diseased comb is perfectly safe for bees.

In most cases the hive-bodies need not be disinfected, because the germ is in the honey and not on the surface of the hive-bodies. Generally frames have so much of the infected honey daubed upon them that it does not pay to save them. It seemed a pity to drop

this subject so soon, but the subject of organization was yet to be considered.

CO-OPERATION AMONG BEE-KEEPERS FOR THE PURPOSE OF SELLING HONEY.

All agreed that, if comb honey is put up properly, there will never be trouble in selling it. The world has never seen the time when there was too much fine, white, fancy comb honey. It is rather the liquid honey that is a drag on the market, and it is this honey that needs help in selling. The great and one point of the whole discussion was how to interest the people, and not to think of useless details which would settle themselves when the time came. Out of more than 100,000 bee-keepers in the United States, only about 2000 are interested enough to know that there is need of co-operation. In an address by Mr. E. T. Abbott, his point was to use plenty of "printer's ink." Advertise the National Bee-keepers' Association, and let the public know that there is such a body of people. When people know that there is such an association they will demand honey which is under its supervision. By increasing the membership of the National it could take the place of a proposed organization of honey-producers.

In a talk by Prof. Eaton he stated that there was practically no adulterated honey in Illinois. He said that, as a chemist, he knew glucose to be the most easily detected adulterant of honey. He seemed to be a little in doubt whether glucose could be fed to bees in order to get them to put it in the sections. N. E. France said that he once tried to get his bees to take glucose after 48 hours of starving. They would not, so he added $\frac{1}{4}$ part of honey. Still they would not touch it, and kept on refusing until it was over half honey, when they accepted only enough to live on.

The question came up here whether cane sugar could be fed to bees in order to have them store it in the sections. The strongest evidence that this does not pay is that it is not done, although it has been tried repeatedly by unscrupulous men who would not hesitate to deceive the public in any possible way. When honey is so scarce, if cheap sugar could be fed to bees and a good honey be made from it, the world would be full of men doing that very thing. But it does not pay. Mr. Niver fed 30 lbs. of good extracted honey to bees in order to have it put into the sections, and he found that it made just 3 lbs. of comb honey. If extracted honey will produce no more comb honey than this, how much would cane sugar average if fed to bees for the sole purpose of securing comb honey?

In closing this brief synopsis of the convention I wish simply to say that those who have never attended a convention of this kind do not know what they have missed. There is something to be gained which is not found in bee-books or bee-literature of any kind. Go and find out, and regret only that you never went before.



BEE-HIVE SHEDS.

Advantages of such an Arrangement over the Open Apiary; is it not Cheaper?

BY W. K. MORRISON.

Whenever you have illustrated the shed used by many bee-keepers I have always strained my eyes to see if it was possible for me to gain or glean a new improvement, but mostly without avail. Your Arizona sketches show the apiarists out there in that hot country appreciate shade for bees and hives at its true value; but, having no rain to contend with, their shelters are got up on a cheap rough-and-ready plan. Some Californians, too, use sheds, evidently with good results. Cuba uses the thatch shed very largely; but it would seem a somewhat dangerous edifice, as incendiarism is all too common in some West-Indian islands. For really neat and attractive sheds we have to look to Europe, though the one illustrated in GLEANINGS, belonging to Mr. Jenkins, of Wetumpka, Ala., is neatness itself, and there are probably more such in the United States; in fact, I know of several myself.

It does not seem to me, however, that some bee-fanciers have caught on to all the advantages of a proper bee-shed, while others probably dismiss it altogether as too expensive to be considered.

Very few practical bee-keepers nowadays will dispute the value of shade for bees, though there are some who do; but they are mostly situated far north where old Sol is not so fierce.

There are not so many who realize the value of a shed as a protection from the wet; but hives will last a great deal longer under a cover of some sort—indeed, it is quite unnecessary to paint them. In point of fact, it would be a waste of money to do so. How many stop to consider the value of shade to the apiarist himself? How much pleasanter it is to work under a cover in the broiling days of summer, just when the good bee-master is at his busiest! With a shed, the tropical bee-master is independent of the services of that master of the tropics, the black-skinned man. Under a shed the hives are closer together than in the open—a great labor-saving invention, though, and is objected to by many. Not only that, but a shed is cheaper in many ways. For my part I believe an apiary in the open costs more; for in a shed, shade-boards, paint, and bottom-boards are unnecessary, to say nothing of the added years the hives will last under a shed.

So far as I have noted in your illustrations, none have adopted the no-bottom-board idea; but it can be done very nicely by simply making a shelf for the hives to rest on, tacking down the requisite strips to raise the hives the necessary space so as to provide an entrance, usually half-inch strips. Now that hive material is kiting up in price, this is worth considering. A further reduction can be made in the hives by using thinner material, $\frac{1}{2}$ inch instead of $\frac{3}{8}$. The top can be made of the cheapest material in the lumber trade, and still be superior to an expensive cover out in the open. It pays to have the shed properly constructed; for example, the hive-shelves should be truly level—a great preventive of badly shaped combs.

With regard to the shelves, it is well to have them high enough to avoid stooping when lifting heavy supers, or when examining the brood-chambers. This is no small matter, I can assure you. Some raise their hives high enough (two feet) to keep toads from devouring the bees; but a small-meshed wire netting, 18 inches high, is sufficient if tacked around the outside of the shed. Ants may be kept away by the use of soft pitch daubed at the foot of the supporting-posts.

What is the cost? Fifty or sixty cents per hive, according to locality. The cost in the open is about a dollar, thus: Hive-stand, 25 cents; cover (shade-board) 43; bottom-board, 32; paint, 10; total, \$1.10.

For 50 hives a shed 60 feet long and 8 ft. wide is required. The aisle is four feet wide, and the hive-shelves take 2 feet on each side. The shed is preferably run due north and south, which allows the early morning sun to strike the hives on the east side, and the setting sunbeams on the western side. This has the tendency to keep the hives dry. At the same time, the bees are effectually shaded during the midday heat, and thus the bee-keeper is master of the situation.

If any one doubts the value of a shed let him try a few colonies under the shade of a tree, and watch the difference in the behavior of the bees under the two plans. The shed can, of course, be modified to suit varying conditions; and in cool localities it would be easy to make a sort of cellar of it. Where cool nights stop the comb-builders at their work, shutters can be applied so as to retain the heat of day over the night. The shutters could be readily arranged to be opened at sunrise by a clock.

There is no doubt in my mind that bees in the cool nights of northern latitudes consume considerable quantities of stores in maintaining the necessary temperature of the brood-nest. Of course, double-walled hives obviate this to some extent.

One very nice advantage of a bee-shed is the immunity it gives from stings. Even visitors may pass up and down between the rows, without veils, and yet receive no souvenirs. But the main advantage is the great relief it affords the apiarist himself.

He is protected from the sun and rain (so are his tools); lifting is reduced to a minimum, and work can be done which would probably be deferred in an open apiary. For lady apiarists a shed is a *sine qua non*. For the tropics it is indispensable.

WHOLESALE MARKETING OF HONEY.

Necessity of a National Organization for Doing it.

BY B. S. K. BENNETT.

Do we realize what we are up against? that for decades the world has produced large amounts of honey that has found its way to ready market? that, while this production has not kept pace with the *supposed increased demand*, the price has steadily declined; that the vast use it is made of in bakery goods, honey-cakes, cookies, and confections, has not tended to better prices? that in a way the supply is limited to the range of flora, which being mostly wild ranges, can not be increased? Why, then, low prices with a limited supply and the demand increasing?

The great bakery trust in the United States, with factories in each main city, is such an extensive user of honey that they pay their honey-buyer \$15,000 a year, or \$47 a day. This man does nothing but manipulate the market. How does he earn his salary? It matters little to him how many buyers there are. He sets the price, and sees to it, as has just been demonstrated in California, that no clerk can get a corner on the market nor on him (this is all private information), but it is what I went into the honey business to learn. I had no idea that there were so many Indians and enemies to the buying, and even in the producing business. I've raked up a snake's nest.

The production of honey through the *shortening of pasturage* is decreasing, while the demand should be increasing; for in 1884, with 800 carloads in Southern California, that nearly all found its way to European markets, that the trade was well satisfied with and wanted more (a demand), why in years since has this European shipment been so limited? I answer, a poor product and the influence on prices. So long as the present condition remains—i. e., that we producers antagonize each other, fighting for the first market, buyers scrambling for the handling at lowest prices, yet unknowingly aiding the large user, we can not hope for a quick movement of honey and still less for advanced prices.

The only real aid will be through organization, or devoting our attention to our home markets.

California is the worst element against advanced prices because of our unequal yearly yields. We flood our markets one year with cheap honey, only to have our local custom refuse it the next year because of its increase in price. Wholesale mar-

keting of honey for California can come only through organization, and not by co-operation or exchanges. I believe in holding the bee-men's *interests*. Control their apiaries by small local companies officered by the best men in that locality.

Capital does not believe in any producing enterprise (it's too much contingent on the elements); then there are too many poor fellows who will attempt it (capital takes the results); but to perfect our marketing scheme among ourselves we must deal with *reliable* organization of ourselves.

A national honey company I hope to see—one strong enough to control all local organizations so that, when you've got the man, you've got his honey. Then the money—we must have it on loading here, as we have for years been able to do. The National simply acts as distributor, placing all surplus honey in the central East, where there is an immense field for the development of the consumption of honey, and keep an eye on Europe.

California producers have an offer, through one of the agents of this bakery trust, of 4½ cts. per pound for all amber extracted honey for a three-year-delivery contract. In good years we rarely get above 3½ cts. Is this a feeler as to our condition? or is it an expectance of an advance in price through our efforts of organization?

Los Angeles, Cal.

MORE IN FAVOR OF A HONEY-PRODUCERS' ASSOCIATION.

The Trials of One who has Produced more Honey than he can Sell.

BY G. R. FRYE.

Mr. Root:—I note with great interest and much pleasure that a glimmer of light begins to illuminate the future of the bee-keeper, and that of the projected "Honey-producers' Association." Most fervently do we trust that this agitation will accomplish the desired result. Nothing has appeared in the bee-journals for years which so vitally touches the interest of the bee-keeper as this. A few words of my experience (which is, I presume, the same as that of all other bee-keepers, except a few of the largest who have an established market) will explain why I speak so earnestly.

During the last four years I have produced upward of 50,000 lbs. of extracted honey. Thanks to the bee-journals and various bee-books, our production has been a success, but not so our marketing. The sale of this honey has given four times over the amount of trouble and worry required in its production. The disposal of the crop is to-day the bane of the bee-keeping industry. There is where the trouble lies. We can generally get a fair amount of honey; but where and to whom shall we look for a buyer?

Twice I have made large consignments to commission men; and in each case, after waiting four months, I got an extremely

small price after the parties knew I was preparing to begin action against them. That was sufficient "commission man." Then I tried selling to jobbers in near-by cities, with only partial success. The home market was worked for all it was worth, but still a large part of the honey each year remains in my warehouse. As a last resort I have for some years gotten some old bee-keeper with an established custom to dispose of it; but he must be paid.

Further, within the last year two of my best customers (trusts, by the way) have ceased to buy, since they are only branches of a large organization, and the central offices of each in Chicago handle all the honey they use. With me, at least, the market narrows down each year.

I have been so discouraged and disgusted at times that I felt like throwing my crop outdoors.

Certainly some one will endeavor to soothe me by advising, "This state of affairs is due to over-production, and can't be avoided." That has been said to me; but I am a long way from believing it. My experience clearly shows that it is not "over-production" which sends us begging for a market, but lack of confidence in the *purity* of what we offer to sell. Let people be assured that honey is pure, and it will sell fast enough. Our town is but a small one, yet we usually retail during the winter about 2½ lbs. on an average for every person in it; but these people know us.

Right here is where an association would be valuable. Every pound (or barrel) of honey bearing its seal would carry a convincing proof of its purity, and people would soon learn to buy. This, together with the greater facilities of such a centralized body in finding buyers, and of buyers finding sellers, for that matter, and the decreased cost of disposing of the crop, would, in my judgment, soon render a much larger amount of honey than is now produced necessary if we are to suffer from "over production."

I note with pleasure that both *GLEANINGS* and the *Review* (papers taken by my apiarist, Mr. A. D. Shepard) seem to be pushing the matter. Good! you have solved most of the questions in honey production; now help us to sell it and you will have our lasting gratitude.

River Falls, Wis.

CO-OPERATION AMONG BEE-KEEPERS.

Getting Aid from the Government.

BY F. R. FOUCH, PRESIDENT IDAHO BEE-KEEPERS' ASSOCIATION.

In regard to your query about co-operation and further organization of the fraternity, I heartily endorse such a move, and the organized societies in our State are rapidly mobilizing on these lines. As soon as we reach the strength and development of the Colorado brethren (which will come with increased population) we will undoubtedly

work on the same general plan. In the co-operative method we have the most rational system for our National organization. Let each State organize closely and look after matters of legislation, gathering statistics, and to be reported by them to the National Association, the National Secretary to report each week to all the bee papers in the United States on the general plan of Bradstreet or Dun—the old crop; prospects by sections; prices, etc.

The commission man should be eliminated, selling through a very few agents in the principal centers of distribution, they to be under the control of the General Manager of the National Association, who will be best informed of the needs of the market, and have the honey shipped where most needed.

The money paid out annually to the commission men would more than pay all the cost, including rent of warehouse, etc. We would benefit by keeping the market well in hand and knowing exactly what the crop is, practically eliminating the competitive system. I think aid might be secured from the Government, making our statistical department a branch of the Agricultural Department, which would help cover the expense. A closely allied system of State organizations formed on the same general plan, looking to a general head in the National organization, is the secret of our future success.

Parma, Ida., Nov. 24, 1902.

THE BASSWOOD TOP-BAR QUESTION EXPLAINED

When do Queens Supersede?

BY G. C. GREINER.

When Dr. Miller and our Naples brother gave their experience and passed their judgment on basswood top bars I felt like shouting "Amen!" for it was exactly my experience too, although not to such a striking degree as Dr. Miller's, whose top-bars must have crawled by this time into some neighboring bee-yard. I was not only an eye-witness to my brother's basswood trouble, but I had a hand in it myself. I cut the timber, drew the logs to the mill, had them sawed, and handled the lumber; and after it was seasoned we manufactured and used the frames. Without exaggerating very much I can say that these top-bars twisted to such an extent that, when the one tenon lay flat on the rabbet, the other would stand, not quite perpendicular, but somewhere near an angle of 45 degrees. If by any means one of these frames was made to swing it would take some time before it would find its equilibrium—just the nicest thing for the bees to have a free swing.

Being thoroughly disgusted with this performance of our basswood lumber we decided there and then to discard, for all time to come, that kind of lumber for top-bars.

Now in the face of these facts comes friend Niver with his jovial epistle and knocks our argument all out of existence. It may seem strange to some of the readers of GLEANINGS how honest and reliable men, as beekeepers generally are, can give such up-and-down contradicting testimonies. But this is easily explained. I can reconcile this matter to a mutual agreement and to the entire satisfaction of all concerned. Friends, you all are right, and a little wrong too. You have given your side of the question, and left the other all out of consideration. Didn't you know that it made all the difference in the world about warping and twisting where and how the timber grew, whether old, large timber, or small, second-growth trees? I am not a scientist, and can not explain the matter in a scientific way; but during an existence of sixty years which I can boast of, I have had some striking experiences, made various observations, and laid up quite a number of recollections.

In my earlier days, some forty years ago, I was occasionally called on to assist in clearing up and fencing land, all suitable timber being split into rails. The timber was mostly beech and maple, with now and then large basswoods from three to four feet in diameter. These latter we cut into logs twelve or fourteen feet long, and with maul and wedges split them into rails. The logs of some trees split very easily. After starting the end with an ax, two or three wedges driven from the top into the opening would be sufficient to roll the halves apart. The split surface of these half-logs would sometimes be so straight and true that nothing short of a saw could have bettered it. The grain ran true in every way, something like pine; in fact, lumber cut from such trees, as I did in latter years, would fill the bill of pine for many purposes. Other trees, only a few rods from the first, would act very differently—whether on account of different soil or a little difference in the lay of the land, I can not say; but the fact remains the same, all our efforts to split the logs cut from them would fail. Even the application of gunpowder, blasting-rock fashion, would not separate the halves. The grain of these seemed to wind around the tree—so much so that, in the length of our logs, it would make a quarter revolution; besides, the different layers were so completely braided or woven together that those logs which we did succeed in splitting had to be chopped the whole length before they would separate. I imagine that friend Niver's Grotton top-bars were made of lumber like the former, and venture the assertion that his confidence in basswood top-bars would vanish like dew before the rising sun if he should ever come in contact with some made of the latter kind.

I could relate other instances of a similar nature, especially one, when I cut on one of our steep Naples side-hills a lot of extra nice, straight, second-growth basswoods

and tried to have them sawed into ladder-sides. This was extremely annoying; but it would not change friend N.'s experience.

I am not all bound up in my own notions, and am willing to give the Devil his due.

There is one good point about basswood. It is generally free from pine knots, which is quite an advantage where clear pine is so very scarce, and you all know how our little saws hate them. This was the main reason that induced us to try basswood for top-bars.

One more point. The way friend Niver quotes "tried it once" has the appearance of unintentional misrepresentation, and may be misleading. It was not a trial of one frame or the frames to one hive, but it was a season's work of manufacturing many hundred frames, a sufficient quantity to give us a fair chance for observation.

Yes, Dr. Miller is right about superseding queens in August; at least my experience leads me to think so. I hived one swarm with a virgin queen to-day, Aug. 23, and quite a number during the last two weeks; and how many superseded without swarming I don't know. Dr. Miller did not mention one point—that is, the time of superseding is somewhat governed by circumstances. The following year after one of little or no swarming, superseding takes place early—about the time when we generally have our first normal swarms. Last year being one of that kind, several of my first swarms, during the honey-flow in June, had virgin queens that I know of, and undoubtedly some of the other swarms, where I did not happen to see the queens, had virgins too. But the year after one of general swarming, like the present, queens are superseded later on, after the main honey-flow is past.

BEES IN A TREE.

How to Get them Out Without Cutting it, or, if Necessary, Without even Chopping a Hole in it.

BY S. R. BLAKLEY.

I have taken out 18 colonies of bees this season without cutting the trees. I have a ten-foot ladder and a pair of climbers. I climb the tree, take my rope and pulley up with me, and fasten the pulley above the bees. I then come down and hook the rope on my ladder and pull it up the tree, and wire it fast to the tree. The top ladder has a platform on it. I get every thing in order. If I am allowed to cut a hole in the tree I make a long narrow one where I think the honey lies. I find the brood-comb, and cut it about the right size to fit the frame, then take out all the honey and let it down to the ground. I fasten the brood-comb in the frame, and pull the hive up on the platform. I then take a dipper and dip the bees up and pour them into the hive slowly, watch until I get the queen in the hive, then I smoke the bees out of the tree. They soon find the queen. I leave

the hive up the tree until night, then take them home. This way I never lose the queen or the honey. I used to cut the trees down, and would often lose the queen and the largest share of the bees, and about all of the honey. I took from one tree this season 150 lbs. of nice clean honey, besides filling an eight-frame hive full of honey. I sold my tree honey at 10 cents per lb. If I cut the tree down I can hardly sell the honey at any price, as it is mashed up so badly, and mixed with dust from the tree.

We will now go back to the first. If the farmer doesn't want his tree chopped into I take a bit and bore a hole through to the honey. I then take a stick and break the honey so the bees will fill up. I give them a good smoking, then bore a hole above the bees and one below. I smoke the bees from both holes, and take a hive with one frame of brood in; place the front of it in connection with the hole where the bees go into the tree, then I smoke the bees from the two holes, one below and one above. The bees will soon begin to come out and bunch up on the side of the tree. I take a lard-spoon and dip them up and put them into the hive. I work this way until I get all I can in the hive, then shut up the hole in the tree, and keep up the smoking. The bees will come out of the first hole I bored. I watch for the queen, and put her in the hive. All the returning bees go to the old hole in the tree, and it is shut up. They soon find the way into the hive. I work this way until I think I have about all the bees out of the tree, then leave the hive until night; then I take it away. The last thing I do, I take a stick and punch the honey open as much as I can, and the bees will not return to their old quarters, but will carry the honey all away.

I have been a bee-hunter for 35 years, and I have tried all kinds of plans, and this is the only one I have ever found by which I could get bees out of a tree without cutting it down or cutting a hole in it.

Farwell, Mich.

CUTTING SWEET CLOVER FOR HAY.

Should it be Cut Before it Comes into Bloom?

BY J. A. GREEN.

The editorial comment on page 947 is all right, but a little more might be said on the same subject. The idea evidently in the mind of the inquirer was to learn whether a crop of hay and a crop of honey could be secured from the same plants. Of course, if the plant is left until all the blossoms have matured and gone to seed it will not make good hay, for by that time the stalk is thoroughly ripe and woody, and the plant is ready to die. But sweet clover cut after a large proportion of the blossoms have appeared will still make very fair hay. Back in LaSalle Co., Ill., the roadsides in many places are lined for miles with sweet clover. The law requires the road commis-

sioners to cut this. The time they generally do this is when the sweet clover is in full bloom. Of course, I did not enjoy seeing the mower start on the roadsides just when the bees were doing so nicely, but there was no use in objecting. Last season, though, I thought I would see if I could not make some use of the clover after it was cut. It had been cut after it had been in bloom for about two weeks, and the plant was quite mature. So I raked up a lot of this clover along the highway and put it into the barn. It was just then a very busy season of year for me, and I could not give much time to haying, so that several loads were left out a great deal longer than they ought to have been. It was so dry that the leaves would all drop off if any attempt was made to handle it after the dew was off in the morning. Some of it was rained on, and none of it had less than two days of hot sun, most of it several days. Yet in spite of this bad treatment my stock, both horse and cattle, liked it and thrived on it. It looked more like hazel brush than hay, and the cattle would not eat all of the coarse woody stalks, though the horse would eat most of it up clean. I have seen the horse come in from a good blue-grass pasture, and pitch into that sweet-clover hay like a small boy into a watermelon.

The proper way to cut sweet clover for hay, though, is to cut it before it comes into bloom, being careful not to cut it too close to the ground. In this way it will grow again, branching out freely and giving a good crop of honey after the ordinary growth is past its prime. I cut a small patch of sweet clover this way this season. It made excellent hay, and I think the second crop yielded more honey than if it had been cut.

The browsing of stock, if not carried too far, is often beneficial in the same way. If given free access to it they will sometimes keep it eaten so close that it will have no chance to bloom, though it is not easily discouraged. I have seen the ground quite white with sweet clover blossoms on plants not over two inches high.

Another way to get a crop of hay from sweet clover without affecting the honey crop is to cut the clover the first season, cutting it very late. I have never tried this more than once, but the experiment was very successful. A fair crop of very good hay was the result, and the clover was not damaged at all. I intended to try this on a larger scale, but my removal here upset my plans.

Some of the Utah bee-keepers that I met at the Denver convention told me that, in their part of the State, sweet clover was extensively raised for hay. I have also been told that in some of the Southern States it is raised largely as a forage-plant. It might be a profitable thing to get some of these men to tell us how it is done on a commercial scale. I am convinced that there are still undeveloped possibilities in sweet clover.

Grand Junction, Col., Nov. 26.

HOW THE ROOT CO. SENT 500 COLONIES OF BEES TO CUBA WITHOUT THE LOSS OF A COLONY.

BY E. R. ROOT.

In our last issue I promised to tell something about how this was done, and the purpose of the enterprise in general.

Mr. A. L. Boyden, who has made a number of trips to Cuba, said there was a demand for good bees in good hives; and after one of his late trips suggested that we send



THE ROOT CO.'S SHIPMENT OF BEES AT HOME IN CUBA.

down about 300 colonies, for we had nearly 1000 in the various outyards in and around Medina. Being in Cuba again this fall, he looked the situation over, and cabled back to prepare 500, which we did.

As a precaution before making so large a shipment, we sent ten colonies by express, put up in different ways—wire cloth nailed to top and bottom; wire cloth on top only, with a common bottom-board, and entrance screened. The manager of The A. I. Root Co.'s office at Havana, Mr. F. H. de Beche, a native of Havana, and an experienced business man and a bee-keeper of many years' experience, was to report which method of preparing the colonies gave the best results.

Now for results: Our manager reported that those colonies with top screens only, and common entrances, came through in bad order. Those with the top and bottom screens on the new Danzenbaker bottom-board came through in fine order, and it did not take us long to decide what plan to adopt for the whole 500 colonies yet to go.

We were still uncertain whether we should send so many at once. Would it not be better to send only 100? But the difficulty here lay in the fact that the cost of delivery would be greatly in-

creased; so we decided to risk the whole 500 in one big shipment, and send along two of our men—Mr. Wardell, the manager of our bee-yards, and Mr. Stephen N. Green, one of our office men. The shipment was put up and prepared with double screens throughout, and started for New York Oct. 20, consisting of two carloads of bees. These were the ordinary fruit-cars having a door at each end as well as one on each side. They arrived in New York in good condition; were loaded on the steamer Mexico, of the Ward line, and started for Cuba.

Mr. Boyden had previously made arrangements with the Ward people to see that the bees were given special consideration and attention on the part of the deck hands; and every facility was indeed afforded our men to make the bees as comfortable as possible.

To make a long story short, the bees arrived in Havana in good order. By a previous arrangement, effected by Mr. de Beche, they were hurried through the custom-house and started by rail to their permanent destination, selected in advance, some 100 miles from Havana, to Paso Real, about 20 miles beyond J. H. Martin, better known as the Rambler; but, unfortunately, the cars in Cuba were not so well adapted for moving bees as those we were able to obtain for the trip from Medina to New York. The

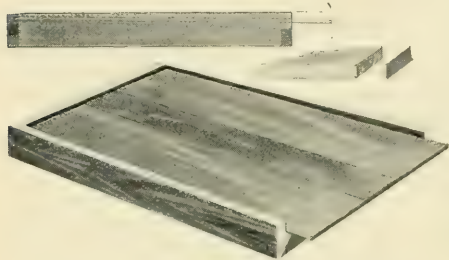
ventilation was poor, and the climate hot—necessarily so. Mr. Wardell feared that many of the bees would suffer, and they did to some extent; but out of a total of 500 colonies for the entire trip, *not a colony was lost nor a single comb broken*, and only a bushel and a half of dead bees; and there would not have been near that amount if they had been able to secure better-ventilated cars for the last 100 miles.

Now, perhaps it may be interesting to know just how the bees were prepared in individual hives. We used the ordinary Dovetailed eight and ten frame, with wire-



THOSE 500 COLONIES IN THEIR NEW HOME IN CUBA.

cloth screen top and bottom. The new Danzenbaker bottom-board we have adopted as a standard for all our hives for 1903 was used on the shipment of the entire 500 colonies. Its general construction is such that the floor-board can be removed entirely, leaving nothing but a rim. This was secured to the hive-body, and the entire bottom was covered with wire cloth as well as at the top; but instead of using the ordinary green or black wire cloth used on common house-screens, we secured a special kind of galvanized cloth of great strength—something that will stand rough usage, and yet which would effectually hold the bees. This was further protected by cleats nailed across the bottom as well as across the tops, so that the hives could be piled up one on the other.



THE NEW DANZENBAKER BOTTOM.

But a word about the bottom-board. The illustration will give something of an idea of its general construction. The floor-board is made of $\frac{3}{4}$ lumber, metal-bound at each end. The two or three boards comprising it are tongued and grooved, and then are secured by metal channel irons. One end of the floor-board is slipped into a groove in the back rim piece. The front part of the rim is made shallower, permitting the front of the floor-board rising or lowering, thus contracting the entrance from $\frac{7}{8}$ deep to $\frac{3}{8}$ or less, even closing it entirely if desired. The floor-board slants upward from front to rear. At the extreme back end of the hive the space is $\frac{3}{8}$; at the front, about an inch. During winter, if the bees are kept outdoors, or during the robbing season, the entrance can be contracted to any extent by lifting the tilting floor-board up in front until the desired contraction is secured. In the summer time or during the swarming season the entrance is opened up to its full size. But another feature that especially commends itself in this bottom-board is that the floor-board can be removed entirely, either for the purpose of carrying the bees into the cellar or for moving the bees. That it is an advantage to remove the floor-board to give three or four inches of space under the brood-frames is further attested by the fact that we sent 500 colonies to Cuba without the loss of one, and a very light loss of the bees themselves.

In carrying bees into the cellar, experience shows that it is very desirable to give

a very deep space under the brood-frames; and this is easily accomplished by simply pulling the floor-board out as you would pull a drawer out of a cabinet; and the same can be inserted in its proper position the following spring just as easily.

THE COST OF SENDING THOSE 500 COLONIES OF BEES TO CUBA.

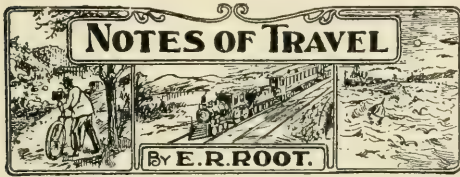
The question will naturally be asked. "How much did it cost to send those 500 colonies to Cuba, and what did you expect to accomplish?" To answer the first question, we ascertained that we could deliver them from Medina to their final location in Cuba for a trifle over \$1.00 a colony; and we did. This cost, of course, does not include the transportation of the men themselves. While we secured transportation from Medina to New York, we had to pay on the boat; but present indications go to show that the fare of the men will be more than covered by the honey actually secured, and by the queens that are forthcoming next spring, leaving a fair margin of profit; and that leads me to explain that the principal object of sending these bees to Cuba was to make it possible for our experienced queen-breeder, Mr. Wardell, to rear queens for us the year round. Early in the spring it is our rule to send to our customers queens reared by other parties, for hitherto that has been all we could do. Very often our customers have complained that they expected to get our stock; and that when they wanted queens from these other parties they will order direct, and will thank us to send queens from our own apiaries or return the money.

Now, then, we have sent a lot of our best queens in this shipment to Cuba, and Mr. Wardell is to rear stock from them just as he did here in Medina. He will send them up to Medina, or to points direct in the United States, or elsewhere.

From late letters received from Mr. Wardell and from Mr. Green we find they are busy giving the bees room, and at the last writing they expected to extract in a day or two. Mr. Wardell is also preparing a set of colonies for queen-rearing out of the number, and before another spring rolls around we shall have plenty of our queens reared in Root yards by Root men, ready for delivery. As soon as the season opens up so the bee-yards around Medina can be worked, Mr. Wardell will return to take charge of the bees here. In the mean time those colonies that are not already sold in Cuba will be presided over by a competent man. But we have already practically sold the whole shipment; that is to say, we shall be holding only a small interest in them. We did not care to undertake the management of a series of out-apiaries in Cuba; but we wished to see what could be done in the way of making a large shipment when the conditions were made as nearly ideal as possible. Already one man, hearing of this shipment, has spoken for 200 of the colonies. Mr. de Beche will probably take a large share of

the rest; and when we get through we expect to have a lot of nice queens ready for delivery next spring, and some experience *not* of the kind that Josh Billings tells about, that "kums hi."

Our Mr. Green took along a little kodak and took two pictures of our bees in Cuba. The accompanying illustrations will give something of an idea of the Root Co.'s venture as it finally landed in that far-away isle of the tropics.



WATSON'S RANCH IN NEBRASKA; THE LARGEST FARM UNDER ONE-MAN OWNERSHIP IN THE UNITED STATES; 3000 ACRES OF ALFALFA; HARVESTING ALFALFA.

Heretofore my travels have related to the irrigated regions, or very largely so; and now I wish to introduce the reader to some localities in the West much drier than here in the East, or east of the Mississippi. Too remote from the mountains or any natural water supply for irrigation, these western prairies seem dreary and monotonous and almost deserted.

As our train snailed along, details were given me of how this one and that one had bought land at high prices during boom days, when it had yielded large crops of corn, but how now in these latter days frequent drouths had made it waste, and the land had gone down in value until the owner was glad to sell it at any price. I naturally came to the conclusion that, if I ever went west, the once great environment of the buffalo would not be a place where I would make a permanent home.

While in attendance at the Denver convention I fell in with a young man at the hotel, Mr. R. A. Wilson, of Kearney, Neb., who said he was working on a ranch consisting of 10,000 acres, 3000 of which was in alfalfa. He further stated that he had been specially requested by the owner of that ranch, Mr. H. D. Watson, to bring me home with him, for Mr. Watson had gotten the bee-fever, and wished to talk bees. As with all his other operations he desired to go into the business on an extensive scale; and as he had done before in his other ventures, he wished to talk with one whom he deemed competent to advise him as to the possibilities of bee-keeping where the bees would have a range of 3000 acres of alfalfa.

Never having seen alfalfa growing in the semi-arid regions, and having supposed that that locality was practically a desert, I eagerly availed myself of the invitation;

and after the convention I went directly to Kearney.

The Watson ranch, at Kearney, Neb., known all through that portion of the country, and perhaps throughout the world, is located on the line of the Union Pacific. So important has it become to that great belt line, that it has actually put up a depot, and the same is christened Watson's Ranch. Notwithstanding the ranch is only about three miles from Kearney, the company deemed it advisable to put up a station at which the product of that great farm could be received and shipped, and here it is.



FIG. 1.—THE WATSON RANCH DEPOT, FROM WHICH THE PRODUCTS OF A 10,000-ACRE FARM ARE SHIPPED.

Mr. Wilson pointed out to me the depot as we sped on the train through that great ranch. But in this case the train did not stop. By a previous arrangement Mr. Watson himself met us at the train at Kearney. I had imagined that I would find the proprietor so busy and absorbed in the details and management of his great ranch that I should have but little opportunity to see or talk with him; but imagine my surprise to find a large stalwart fine-looking man, fairly bubbling over with enthusiasm. He was very glad to see me, and in regular lawyer fashion plied me with questions regarding the possibilities of bee-keeping. He proposed to make no mistakes, and was eager to get hold of every scrap of information that would lead to success.

Perhaps I should explain that one secret of Mr. Watson's marvelous success lies in the fact that he does not himself try to look after every department of his great ranch. He has called in experts, one to look after the dairying department, another for the stock-raising, another for hog-raising, still another after the care of the ranch, that is, the growing of crops; and Mr. Wilson, a college student, was called in as an expert on bee-keeping. Said Mr. Watson, as we were driving through the ranch, "I do not believe in worrying nor being in a hurry;

the rusher burns out too fast, and he is never fit for duty."

I found my host, while alert and active, taking life quietly—one thing at a time, and on this occasion it was bee-keeping. Mr. Watson explained that people have told him the land was worthless—that it was fit only for stock-raising; but he had always believed that alfalfa and corn could be raised on it; and in proof of that belief he showed me hundreds of acres of standing corn as strong and thrifty as any I had ever seen, and alfalfa by the square mile, all growing luxuriantly without any irrigation. All the old ranchers told him he could never, *never* do it, and even after he began they used to talk about "Watson's folly;" and with a knowing shake of the head would say, "Wait; he will learn some

we were driving was coming up for one more cutting. It was then 14 or 15 inches high, and soon the mowers would go through the field, cut it down, and put up more stacks, for it will be remembered that out in that country it is not necessary to put the hay in barns, or at least not as necessary as for us in the East, where we have so much of a rainfall. Indeed, barns sufficiently large to accommodate 7000 tons of hay (for that was Mr. Watson's crop last year) would be out of the question.

But something that particularly interested me was the method of stacking. While the old hand pitch-fork is still used, of course, the amount of work that it does is comparatively insignificant. Instead of, as in the days of old, pitching a little forkful of hay over one's head, leaves and seed

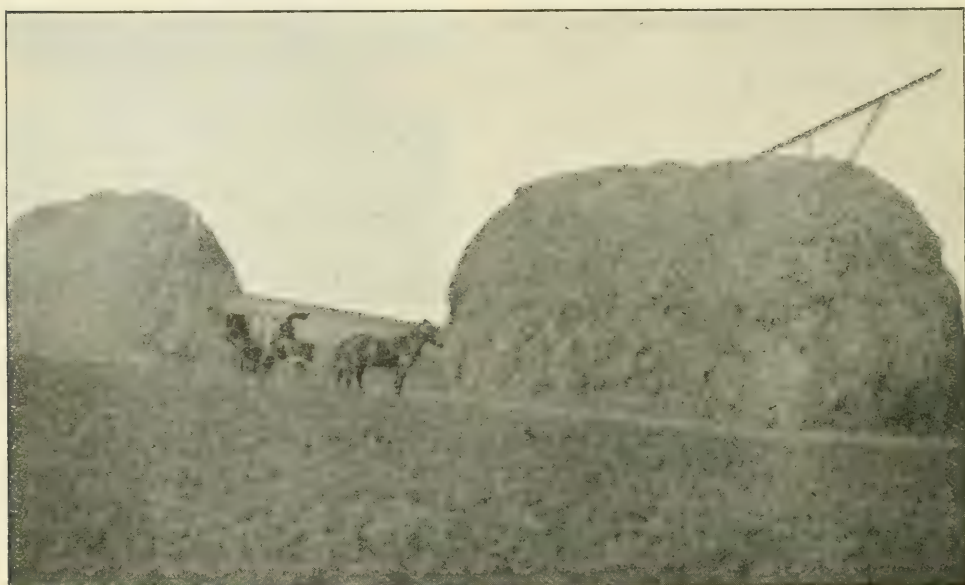


FIG. 2.—SOME OF THE IMMENSE STACKS OF ALFALFA HAY ON WATSON'S RANCH.

day, just as we did." And he *did* learn—not that his schemes were a failure, but that he could make alfalfa grow, and is teaching all those same ranchers round about him how to do it too.

As we drove along we saw the immense stacks of alfalfa, for the last cutting was being made and the hay stacked. The reader will get something of an idea of the immensity of those stacks by looking at Fig. 2. The carriage stopped a short distance from one of the stacks; then with my kodak I receded to a position where I could take a good view, and the result is before you. How many hundreds of tons of hay there is in one of those stacks, I can not say, but they were scattered all over this expanse of country almost as far as the eye could see; and the alfalfa through which

getting down one's back, this hay is gathered up by this machine off from the ground, a whole wagonload at a time, and nicely deposited on top of the stack. One man and a horse do all the work, and do it easily. Mr. Watson was kind enough to give me every facility for taking pictures. He stopped his men at several intervals, and had them group in position to indicate the several steps used in raking and stacking the hay.

I have already shown how block and tackle are used in Arizona for this purpose. In Fig. 3 I show (somewhat dimly, perhaps) another arrangement that is used by Mr. Watson; but before describing the operation let me show the rake for picking up the hay after it is cut and dried—see Fig. 4. As here shown, it is simply a large wooden

comb, as it were, laid on its side, to each end of which is hitched a horse. The driver sits in the center, and drives forward over the cut hay; and the teeth, passing under the hay, catch it up until it forms a great roll. The driver then takes his load to the stack, and runs it clear up on to the

or three men each with a rake as shown in Fig. 4. In Fig. 3 the stacker is shown elevated empty in order that its general form of construction may be shown clearly up against the sky-line.

Mr. Watkins does not believe that it is practical to use steam machinery, in that



FIG. 3.—THE HAY-STACKER USED ON WATSON'S RANCH.

fork of the stacker, the fork now being on the ground. The horses then back up, pull away from the hay, leaving the load on the fork of the stacker, and then start for another load. In the mean time the fork of the stacker, Fig. 3, is pulled up by another

country at least, for cutting hay. He uses an ordinary two-horse mower with driver. Sometimes he uses enough men so that the whole gang will cut a swath 110 feet wide once around the field; but on this occasion there were only enough men to cut 50 feet.



FIG. 4.—HOW THE HAY IS RAKED ON WATSON'S RANCH.

horse and man until it reaches the proper elevation. It is then swung around by means of a guy-rope to the desired point on the stack. A trip releases it, and dumps the entire load at just the point where it is needed. One stacker will take care of two

Driver No. 1 will start around the field. Driver No. 2 with his mower follows 30 or 40 feet back, and a little to one side—just enough to drive the horses on the ground cut by the team just ahead. In this way the teams were driven in a sort of zigzag

tandem clear around the field. The cost of the mowers and of the men is enough less in the investment to make mowing by the use of horses more profitable than to use a traction engine in connection with a large machine such as I illustrated and described some little time ago.

Mr. Watson has also prairie grass; and while he says it makes good hay, it does not begin to have the same amount of nutriment that alfalfa does; nor is there the same tonnage to the acre. His neighbors all along have been content to cut prairie grass year after year, as they said alfalfa would not grow; but here, as he pointed out to me, he had 2800 acres growing luxuriantly. It was beautiful alfalfa as far as the eye could reach; and if he had told me there were 2800 square miles of it I should have been quite ready to believe him, for I could not see to the other side on either side. In Figs. 3 and 4 you can see something how the field spread out, and how the stacks, fully as large as those in Fig. 2, were scattered over the country. More anon.



CATCHING SWARMS.

On p. 733 I read an article about catching swarms. I think I can show an easier way, which is always successful with me. I take a hive containing frames filled with combs. On this hive I fasten a pail-handle, the ends of which will just fit in the hand-holes in the long side of the hive. The cover and bottom-board of the hive are not needed; but I lay a mat or quilt on the top to keep out the light. Now, when the swarming should occur, no matter how high the swarm hangs, I hook a long pole on, having a tripod or sharp cord to bind on the limb of the tree. Adjust it so that the hive hangs directly over the swarm, and the bees will go into their new quarters. Next morning I have to set it down; cover and bottom-board are in use, and the new colony hived without trouble.

RUDOLPH LICHTWER.

Milltown, N. J., Oct. 8.

[Your scheme of catching a swarm is perfectly feasible and practicable. I have used somewhat the same method, but without the bail handle and the pole. In our yards the bees very often cluster very low on bushes. Then it is easy to put a hive with combs, including one with eggs and unsealed larvae on a box just high enough so that the bees can be shaken right down on to the combs. Where the trees are reasonably high, a long handle with a bail attachment to the hive would be very convenient.—Ed.]

A LOCAL ORDINANCE AGAINST FOUL BROOD.

We are now making a hard fight against foul brood in this county (where you examined J. D. Flory's bees). I send marked paper containing ordinance recently passed to check diseased bees being imported. Others may do well to follow our example. My neighborhood is healthy.

W. A. H. GILSTRAP.

Modesto, Cal., Oct. 29.

In the matter of a petition for the appointment of an Inspector of Apiaries:

This matter being presented on the petition of ten and more residents and tax-payers of Stanislaus County, praying for the appointment of an Inspector of Apiaries, J. G. Gilstrap and others appeared before this Board, said parties having been fully heard, and the Board, being fully advised, orders that H. M. Cole be, and he is hereby appointed, Inspector of Apiaries of Stanislaus County, State of California, for the term of one year, provided, however, that he shall be paid for not to exceed 60 days in one year.

ORDINANCE NO. 47.

Be it ordained by the Board of Supervisors of the County of Stanislaus, State of California as follows:

Any person or persons who move or cause to be moved any bees into this county shall, within thirty days prior to said removal, procure a certificate from a legally authorized Inspector of Apiaries, showing that they are free from the disease known as "foul brood," "bee paralysis," or other contagious diseases, and said certificate shall be filed with the Inspector of Apiaries of this county before said bees are brought to this county. At the time of filing the aforesaid certificate the owner or manager shall notify the Inspector of Apiaries of this county of the time and place when and where it is intended to locate said bees. Any violation of this ordinance shall be a misdemeanor, and punishable therefor. This ordinance shall take effect 15 days after passage and publication.

Adopted this 13th day of October, 1902.

T. J. CARMICHAEL, Chairman.

A. S. DINGLEY, Clerk.

THE THICK TOP-BAR VS. THE THIN; ARE THICK TOP-BARS INCONVENIENT FOR THE BEES?

Mr. Root:—I want to thank you for considering my temperature "hobby," so kindly. I am more and more convinced (every time I "operate" among my bees) that there is a great deal to be learned about temperature as it affects bees and honey.

In answer to your question as to my experience with deep and shallow top-bars I have some very shallow top-bars ($\frac{3}{8}$ of an inch), strengthened by a wooden center-piece nailed perpendicularly in the center of the frame. I notice that the bees never, in a single instance, cluster on this center-piece, but build comb (in squads) on each side of it, beginning in the center of each side, and building out to the frame. They also, in almost every instance, cover this shallow top-bar with wax in the shape of small cells, and in a number of instances I find honey all over this top-bar, with the wood completely covered up; but I have not found the above conditions with deep top-bars in a single instance; but I note that the bar is free from wax on the sides, and that there is comparatively little wax on top under the sheet at any time, showing, I think, that the bees do not so readily climb over the wide wooden space as the narrow one; and especially do they prefer a rough surface of their own construction to travel over to anything we can give them. I agree

with you that wood may be kept as warm as the same cubic inches of honey (sealed), but I have never seen a cluster of bees on anything in a hive, except their own product. They well "fight shy" of wood or any foreign material in the hive, and will tear to pieces and drag out any thing and every thing that they can possibly tear down and move out, except what they produce, and they endure all they can not cure.

I notice that the bees cling to the top edge of the shallow bar while the comb-builders are at work under them, and that they cling to the under side of the deep bar while the same work is going on. I am convinced that they object to furnishing a large number of extra "hands" for the sole purpose of heating up a "deep" top-bar, and I think they find it easier to hold on to the top edge of a shallow bar, and easier to move over the shallow bar to work in the super. Of course, I am aware that bee-men may differ widely in their views in regard to these as well as other matters and things; but you will admit, I know, without argument, that the deep top-bar was made for the sole benefit of the "master" to keep the comb from "sagging" and breaking down from any cause, without the slightest regard for the convenience or welfare of the bees.

In my paper in GLEANINGS of Nov. 1st I say, "Supers without brood would be the exception instead of the rule," which should read, "Supers with brood would be the rule instead of the exception."

Statesville, N. C. J. M. GIBBS.

[It seems to me you are relying more on theory, and what the bees ought to do, than what they really *do* do, in the matter of their storing in the supers. What the bees do with reference to the top bars thick or thin is the question. It is what they actually do above them in the supers. Did you ever try ten hives with thin top-bars alongside of ten hives with thick top-bars, both having a set of supers on top, the two sets of hives as nearly alike in strength as possible, except in point of thick top-bars? I am satisfied that you will find, as hundreds of others have done, that they will store honey just as readily in one set of supers as in the other. We do not make thick top-bars because the bees ask for them, but because they subserve the convenience of the bee-keeper; in that you are correct. But if their use will not decrease the amount of honey in the super, why shouldn't we use them, theory or no theory?

I do not quite see the force of your argument of heating up a deep top-bar. Will not sealed comb honey be as cold—yes, colder—than the same cubic space of wood?—Ed.]

BEEES IN A SOAP-BOX; WHAT IS THE BEST WAY TO MANAGE THEM?

Will you please settle a little argument between three of us here? A bought a colony of bees in a soap-box, having top and

bottom nailed. He is going to wait till they swarm next summer, and then open the box and place the brood in frames in a modern hive. B says, "Bore holes in the top of the box and place a deep super of frames and foundation on top of the box hive, and the queen and the bees go up into the super—which can be removed and placed on another deep super, the two making one hive?" C says, "Knock the bottom off the box hive and put a super under." Will the bees bring down the stores and place them in the super under the hive. The subject under discussion between B and C is whether the bees will breed in the lower super box or upper super first; also how to get the box from the bees before breeding and swarming time so they will swarm from a modern hive instead of a box hive.

Chicago, Ill.

W. G. REYNOLDS.

[None of the plans indicated by A, B, or C are really good. Perhaps B gets nearer to it than either of the other two. I would knock the whole bottom or top off from one box, then set an ordinary hive with clean combs on top. Combs should contain stores sufficient to winter them. The heat will naturally arise into the hive above, and the bees will not be slow to go where the heat is. The objection to B's plan is that it would not entirely confine the heat below, and the bees might be inclined to stay in the box rather than go up into the hive. Last winter a farmer brought in a colony hived in a soap-box. We took off one side, and put a hive containing some old stores right over it. In about a week the bees were in the upper hive.—Ed.]

CELLAR WINTERING; MOLDY COMBS.

One year ago I built a room in my cellar for wintering my bees. In size it is 6x18x6, and ceiled with matched pine. My outer-room cellar froze ice an inch deep, but I kept my bee-room door closed during the coldest weather. The hives were tiered up, and in the upper ones the combs were damp and moldy, although bees came out quite strong. My cellar is a very dry one, but cold, and I am thinking of putting two inches of sawdust on the walls by nailing thin lumber on studding. Is there danger of my making it too warm by doing so? I have an outside door to my cellar, by means of which I can cool it. Do you think it advisable to put in this packing of sawdust? or would you put in the bees the same as last winter? I did not lose any, but I thought by the moldy combs that there must have been frost inside the room.

A. B. DENMAN.

Osseo, Mich., Nov. 9, 1902.

[Moldy combs in hive wintered in the cellar do not necessarily indicate a bad condition. If the mold is too pronounced it would show too much dampness. I would not advise putting the extra sawdust protection around the inside of the cellar unless the temperature in that cellar goes below 30 or

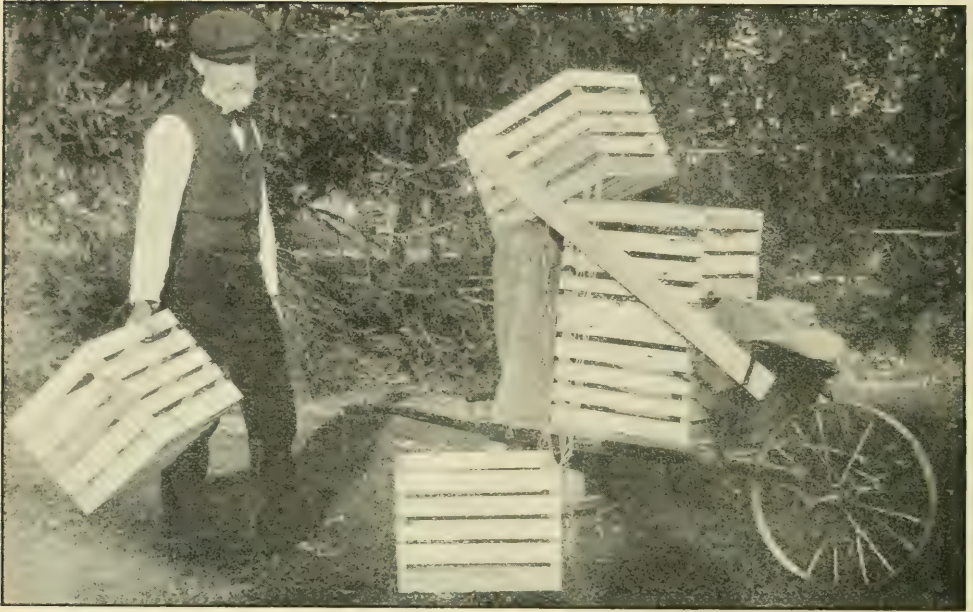


FIG. 1, SHOWING HOW I TOOK MY "PHYSICAL CULTURE" UP IN NORTHERN MICHIGAN. SEE "HIGH-PRESSURE GARDENING."



FIG. 2.—SWINGING HALF A BUSHEL OF POTATOES UP WHERE YOU CAN POUR THEM INTO THE SACK. SEE "HIGH-PRESSURE GARDENING."

40 Fahr. during the coldest winter. Then, too, there is danger that the sawdust might collect dampness and hold it. If you can maintain the necessary inside temperature, from 40 to 55 degrees, with your present walls, better leave them as they are. On warm nights, if you have them, following a warm sunshiny day, I would open up the cellar doors and windows and let the cellar ventilate and dry out occasionally. It may be advisable, if the temperature goes too low, to have a small stove in the cellar, so the temperature can be raised, and the dampness be driven out. But do not use an oil-stove; for the gas generated will befoul the air.—ED.]



In those days came John the Bap'tist, preaching in the wilderness of Judea, and saying, Repent ye, for the kingdom of heaven is at hand.—Matt. 3: 1, 2.

And now also the ax is laid unto the root of the tree.—MATT 3: 11.

The Anti-saloon Congress at Columbus, O., Dec. 1, 2, 3, was from beginning to end largely devoted to the enforcement of law. It was mostly in regard to the enforcement of the good laws we already have on our statute-books rather than the enactment of more. The meetings opened Monday night; and I supposed that, as this first meeting was principally addresses of welcome, responses, etc., the attendance would not be very large. I was agreeably surprised, however, to find more than 1000 delegates from our State present; and as I looked on the faces of the thousand or more educated and refined men and women, I thanked God again and again that we have so many who are ready to give their time, their brains, and their money to protect the best interests and welfare of our State.

The next day I was agreeably surprised, again, to find nearly 2000 delegates present. In moving about among them I listened to their talk; and it was a revelation to me that we have so many men and women of such an advanced stage of education, and of such clean Christian character. There were college professors, editors of religious and educational periodicals, ministers of the gospel, prominent physicians, and God-fearing politicians.

Gov. Nash was to give the address of welcome; but we were obliged to be content with a telegram saying it was impossible for him to be present, assuring us of his sympathy and interest in our work.

Rev. B. F. Dimmick, D. D., said in his address (in place of that of Gov. Nash) of welcome:

"We are not ashamed of ourselves, although we are ashamed of some of the things that exist in our city."

The response was by Rev. Levi Gilbert, of Cincinnati, editor of the *Western Chris-*

tian Advocate. It rejoiced my heart to know that a man of such ability and such pure religious convictions was standing at the head of one of our great religious periodicals. In the absence of Gov. Nash, Rev. Morgan Woods, of Cleveland, delivered the closing address. Mr. Woods is a man of great ability, and is doubtless doing a great amount of good; but he certainly is not up to the times, and *in touch* with our present temperance work.* In one part of his address he made the remark we had got past the time of signing pledges; but I think he saw by the looks of his audience he had made a misstep, for he undertook to back out of it gracefully. A speaker later on, alluding to it, said when he married his wife he took a pledge; and it had been the delight of his life to keep that pledge in mind, and try to live up to it; therefore he believed in pledges. The second day was opened by a stirring address by Superintendent Baker, entitled, "The Work Accomplished and the Work Before Us." After this, Rev. C. L. Work, D. D., of Granville, O., gave us one of the best temperance talks I ever heard, taking up as his subject, "Why, as a Prohibitionist, I work with the Anti-Saloon League." I have asked for a copy of this address, and propose to give it in these columns soon, so I will make but little comment now. Permit me to say that I have been, ever since the Anti-saloon League was started, urging all temperance organizations to be exceedingly careful about anything that could be called cross-firing in our ranks. I have written to the editors of the *American Issue* to be very careful about criticising or even reflecting on other temperance parties or periodicals. Again and again I have felt pained to see how our editors and leaders of temperance were forgetting to show before the world the spirit of Christ Jesus, our common Lord and Master. May the Lord be praised, however, that we are just now entering on a new era. The periodicals that have been saying bitter things toward each other have clasped hands, if I may so express it, and united. The consequence is, the *enemy* is falling before us on every hand.

Rev. Emory W. Hunt, D. D., President of Dennison University, gave us a magnificent talk on "the college man and his reforms."

"How to conduct a local-option campaign under the Beal law" was given us by Dr. H. G. Furbay, Field Secretary of the Anti-saloon League. The central thought of all

* Here is some more of Dr. Woods' reasoning that I clip from a report made by the *Daily News and Herald*:

"He was advised by the Cleveland superintendent of the League that the Lake Shore road is behind the effort to have Collinwood declared 'dry,' and expressed the conviction that it was a purely selfish proposition urged because the road can make more money with sober men than it can make with drinking men."

God grant that we may have some more such exhibitions of "selfishness," especially on the part of our great railroad companies.

Dec. 13.—Since the above was put in type Collinwood has gone dry by a majority of 179 out of a vote of 1065; and the mayor has notified 36 saloon-keepers that they must clean up and get out inside of 30 days. Once more may the Lord be praised.

the addresses, from beginning to end, was this very *Beal law*. I have spoken of the victory at Xenia. Rev. A. C. Turrel, pastor of the First M. E. Church of that place, told us all about it; and every one in that audience of two or three thousand understood exactly how to go to work to get their own home town "dry" if it is not already so.*

"How we did Not Win at Ironton," by Rev. H. J. Smith, D.D., gave us a glimpse of what we might expect in the way of underhanded, illegal means, and the use of money by the enemy when we undertake to fight him in a large town where there are many saloons. Thank God, men of capital are now coming forward and furnishing us the money to fight these good fights; but we as Christian men can not stoop to the underhanded means employed by the brewers and their agents; but even if this be true we are more than a match, for *God is with us*, and the enemy have only Satan for *their* helper.

The program announced the noon recess at 11:30; but the chairman found it next to impossible to close before noon; but he said at closing there would be a "school of methods" conducted by experienced workers at 12:30. That left us just 30 minutes to get our dinners. But I was agreeably surprised to find a great crowd on hand at 12:30.

Let me say right here that the beautiful restaurants in Columbus seemed to recognize the need of giving us something good, and doing it *quickly*, so we might get back; and I am going to mention one in particular, the Busy Bee and Candy Kitchen. This is a temperance dining-room in every sense of the word. Almost a dozen years ago I mentioned it on these pages; and it has grown now to be one of the finest restaurants to be found in Columbus or almost any other city. We sometimes hear the plea made that certain restaurants could not give the nice service and low prices they do, were it not for what they make on their *liquors*. The Busy Bee gives better service than I have ever found in restaurants in *any city* where they had a whisky sideboard. They have now three large stores in Columbus; and while we were there they were full of business. At the school of methods I found our old expert friend in all matters pertaining to temperance law, Mr. Wayne B. Wheeler, answering questions in regard to the enforcement of law as fast as they could be fired at him. In fact, he had to ask them to stand while he could decide whose question came first. His audience was composed of men and women who had been right in the fights, and who, perhaps, were in fights *then* to get their respective towns

dry instead of wet. Many of the questions pertained to getting rid of the "speak-easies." Again and again somebody at my elbow would say, "There, that is where we are in our town." Then somebody would clap his hands, saying, "That answers what I wanted to ask. We shall know just how to take them now."

Several asked about the distilling company in Kentucky that is sending out circulars, wanting to furnish "good old whisky" wrapped up so securely that the temperance fanatics can not tell what is going on, etc. Mr. Wheeler told each one to send an order for some of this whisky. One good brother responded, "Why, Mr. Wheeler, I am a Methodist preacher. If it should get out that I was ordering whisky, what would become of me? And then these fellows say there is not a cent to pay until you have drunk the liquor; and if it is not the best you ever tasted, you will not have to pay any thing. You tell me to send and get some of the stuff. You surely do not mean that I must *drink* it so as to get a case against them, do you?" Of course, there was a shout of laughter at this.

In the afternoon we had some stirring addresses from the respective authors of the Haskell, Harris, Clark, and Beal bills. Then Rev. E. C. Dinwiddie, Superintendent of the Legislative Department of the Anti-saloon League at Washington, told us about the canteen fight they have had, and the one that is to come. Unfortunately for me I was obliged to be out of the room at a committee meeting, and did not hear this.

The afternoon was finished up by Rev. Howard H. Russell, the originator and pioneer in introducing the Anti-saloon League in the United States. There were four of the pioneers besides Dr. Russell who were present at that first meeting of the League in Oberlin. These four were requested to sit on the stage with the speakers. It was lucky for me that I was one of the above four, because my hearing is getting now so that I can not catch every word unless I am near the speaker.

At 6:30 the school of methods was opened again, and it took two able lawyers to answer the questions.

Tuesday evening the Rev. George R. Stuart gave his celebrated lecture, "My Stump-digger," in the great auditorium. There are several reasons why I was most intensely interested in this talk. We were cautioned by Supt. Baker several times during the day, unless we had tickets we might not be able to get into that great auditorium. Now, this building or inclosure will hold about 5000, and I was curious to know why four or five thousand people should crowd each other to get a glimpse of one little man, and hear him talk. And that was not all. Something like 4000 people were in a rush to pay *25 cents each* for the privilege of listening to him for an hour or perhaps a little more. When he came on the stage I was disappointed in his looks. Most lecturers, where they receive \$100 or

* In Xenia they had 33 saloons in a population of 9000, and when that Methodist preacher showed them he could fight as well as preach they threatened to burn his home, put out the eyes of his children with "vitriol," etc. But such threats as these rather helped the preacher. They had a law-enforcement committee of 100 of their best business men; and after the saloons were ruled out, the policemen were informed they could have their pay just so long as they strictly enforced the law—no work no pay.

so for giving a talk, are dressed in the height of fashion. Brother Stuart did not dress stylishly at all. He had not even taken pains to have his shoes shined up just before he began. After getting a little acquainted with him I began to imagine the poor fellow hadn't time to do so. He ought to have had his wife with him, but I suppose that was impossible. I wondered, too, that he did not have his hair brushed a little better, something the way Mrs. Root fixes mine when I am to talk before a Sunday-school convention. But I afterward decided that it was not of much use to comb *his* hair, for his gesticulations and all sorts of motions with hands, face, feet, and muscles would have tumbled it all up. He said in the first place he was only a commonplace Methodist preacher. When I *first* saw him I thought he was not even a *good-looking* man. But I changed my mind after a while. Where, then, was the secret? It made me think of John the Baptist in the wilderness. The Savior, in alluding to it, said to the people, "What went ye out for to see? A man clothed in soft raiment? Behold, they that wear soft clothing are in kings' houses." We are told in holy writ that great multitudes came to hear John the Baptist talk; and, dear reader, Brother Stuart's talk was, I can imagine, like that of John. He told people of their sins and inconsistencies. While he did put it with exceeding force that many of us are guilty of not "voting as we pray," yet he carefully forebore pitching into any *one* political party. He pictured out at great length the terrible consequences that were to come upon us as citizens of this great republic if we allowed saloon-keepers and gamblers to trample our laws under foot; and he did not hesitate to call public men by name, and denounce them for their half-heartedness, not to mention their sins. He has a wonderful gift of acting out the characters he speaks about. The intensity of his convictions *startles* one. The short cuts he makes in thrusting truth home, are astonishing. He can convey in a few words more great truths than any other man I ever heard speak. I can take space to give you only one or two of his illustrations. All at once he asked abruptly how many saloons there were in Columbus. Somebody said there were about one thousand. He said that would not do. He was sure that somebody in the audience could give us something a little more definite. Finally a voice called out, "There are, as nearly as we can make out, 576 saloons in Columbus." At the beginning of his speech he turned around abruptly, swept his eye over the audience, and said, "How many of you people are in the habit of saying amen when you go to meeting?" Then he swung around for some reason, I do not exactly know why, and, looking right at me, or toward a number of us on the stage, said, "Do *you* ever say amen?" I nodded my head, and smiled. "Well, say it *now*: let's hear you."

Then I gave one of my loudest amens; but there were so many others that mine was perhaps nearly drowned out. "Now I want you men to say amen when you feel like it; and as women's voices are hardly strong enough to be heard in a crowd like this, let them clap their hands. But do not any of you stamp your feet. The dust is unwholesome." Now, then, for his story.

He said in substance, "If there are 576 saloons in Columbus, and each saloon has two regular customers—of course, we know every saloon has *more* than two regular customers, judging from the tax they pay; but we will call it two, so that the enemy can not accuse us of exaggeration. This will make over 1000 regular drinkers in the city who are in the habit of depriving their families of their weekly wages that justly belong to them. We will multiply this by 1000; or if you think I have not got my estimate too great we will put it five or ten thousand. One out of this army starts to go home at night. We will call him John. John goes into the butcher-shop and asks for a dime's worth of liver. His family needs some meat. Just here the keeper of the saloon, where he goes regularly, comes in and wants a dollar's worth of the best porter-house steak. The butcher leaves John waiting, while he hastens to attend to the order of his rich patron. He is dressed up in the highest style of fashion—has a gold watch, diamond pin, takes one of the most expensive cigars out of his mouth while he greets John, and, after looking down upon him, walks out. John has a little spark of manhood left. He has a dollar in his pocket which he was expecting to invest in that saloon. He begins to consider the matter. Why should this saloon-keeper look down on him, while he displays his wealth—wealth that John has at least helped to furnish? Instead of going to the saloon, John starts off in another direction in a brown study. As he walks along he shoves his hands into his pockets, and begins to whistle." Here Mr. Stuart begins to whistle "Home, Sweet Home." He walked along the front of the stage and in front of the audience. At the further end of the stage was an exotic tree standing in a tub, which was probably brought from some greenhouse. John walks up to the tree, gazes up into its branches as he whistles the last refrain of Home, Sweet Home. It was evidently a crisis with him. My seat on the stand near the speaker was such that I could see every face in that vast audience. When he commenced whistling Home, Sweet Home, I knew he was swaying that vast multitude as if they were a single person. That low plaintive whistle touched hearts as nothing else could. Tears started in hundreds of eyes—yes, they started in my eyes. He turned around and walked back to the stand. He went back to that poor desolate home. John opened the door, and, meeting the gaze of his poor wronged and famished wife, with her patched-up clothing, he took the dollar out

of his pocket, saying, "Mary, can you make use of a dollar just now?" The poor woman took it in fear and trembling. She was afraid she might say too much; and, judging from past experiences, she was almost afraid to say any thing. She feared that, if she took any thing for granted, he might curse her or strike her, for no one knows when a drunken man may change his whims. He did not say very much, for he was not very sure himself. The next pay day he brought home all of his earnings, and told her he wanted her to go out shopping with him. He went to the meat-market, grocery, and store; but at every place they stared at him and at his poor ill-clad wife, and seemed disposed not to pay much attention to them. When he ordered a respectable piece of meat the butcher hesitated to put it up for him, for he supposed John would, of course, want to be trusted, and he made up his mind beforehand that he could not trust him. However, when John put down the money, the butcher said in an instant, "Mr. Brown, shall we not send this meat up to your house?" John replied meekly, "Oh, no! I can carry it." At the groceries it was the same, and the same at the drygoods stores. Everybody knew them and was astonished. In another week the poor wife went around with him again, at least *decently* clad. The butcher, the grocer, and storekeeper, sprang with alacrity to wait on them, and insisted on delivering the goods at their home. "Now, friends," said the speaker, "multiply John by 1000, 5000, or 10,000 workmen going into the stores and groceries and markets of Columbus some Saturday night to pay out \$10 instead of paying out one as heretofore. What would be the result? Your business men can tell me what the result would be. The butcher would telephone to the wholesale meat-dealer, 'Send me a dressed steer, and send it quickly.' The meat-dealer would telephone back, 'We are just bought clean out of every thing. There has never been such a demand for nice meat since we have been in the business. We will, however, do the best we can for you.' He telephones to the farmer. The farmer replies there have been already half a dozen men after every 'beef critter' he has on the place. The grocer sends in orders for various supplies, with the same result. The storekeeper orders more calico. The calico market is on a boom. Tradespeople who have not been paying expenses say their trade is picking up so they can lift the mortgage that was lying on their conscience. Best of all, and more than all, the poor starved children that hadn't clothing to go to school are all fixed up, healthy and happy. *Everybody* has been helped and prospered. Did I say everybody? No. The saloon-keeper is having a lull in business. If the thing lasts very long he will take off his good clothes and quit smoking the highest-priced cigars, and may be, through God's providence, finally obliged to go to the meat-market

and ask for a 'dime's worth of liver' for his starving family."

Now, I have not told half the story as Mr. Stuart told it. I have skipped a great lot because I can not tell it as he did. No one can. But you see, friends, the great truth. All through he was interrupted by "amens" or by the clapping of hands and bursts of laughter, to be followed by shedding of tears. A wave of enthusiasm went over that vast audience—such a wave as could not have stirred them under other circumstances; for *hundreds* who listened to him had just been having hand-to-hand conflicts in waging war against this same saloon-keeper. The people who heard him were intelligent and scholarly, and resolutions were formed then and there that the saloon *must* go. In fact, the great motto or watchword, "The Saloon Must Go," was painted in huge letters and hung across the stage during all of our meetings. God bless and strengthen George Stuart; and may his audiences continue to crowd each other to get within hearing distance of his voice. Mr. Stuart is not afraid to speak the plain truth. He can not be bought up with money or any thing else. His life has been threatened again and again. They have burned his buildings, as I have said, and annoyed him in every possible way, and probably will continue to annoy him. In some large city the saloon-keepers scraped up courage enough to band together a hundred strong. They came and sat in front of the stage, right before him. The pastor of the church whispered to him to try to present the matter as kindly as he could, for many of them were good men otherwise, and were very liberal in subscribing to his salary, church expensess, etc. Mr. Stuart promised to speak "kindly"; but there was a grimace on his face as he said "kindly." He told us what he said to them, and I think it was about as severe as any thing that was ever said behind their backs. Very likely he told the story I have tried to tell you, about John and Mary.

Concluded in our next.

ANOTHER OF OUR GOOD MEN GONE TO HIS REST.

Everybody who knew J. Fremont Hickman, of the Ohio Experiment Station, either personally or through his writings, will be pained to know of his death. The following is from Prof. Thorne, director of the station:

Mr. A. I. Root.—I wish to thank you for your many kind words in GLEANINGS respecting the work of our station. There are some who criticise, but more, I am glad to say, who recognize the earnest effort to assist the farmer.

We are now in deep grief with the loss of our faithful, loyal friend and co-worker, J. Fremont Hickman. Six weeks ago he was taken sick with typhoid fever, that was succeeded by jaundice, but his physician believed that his chances for recovery were fair to the last, and left him only an hour before his death, with that belief. He passed away about 10:20 P.M., Oct. 22.

You have seen more of Mr. Green's work because of your acquaintance with him and greater interest in his field of work; but it is no disparagement of Mr. Green's work to say that the farmers of Ohio owe so great a debt

to Mr. Hickman. The two men worked hand in hand, each in his separate field, and each giving his work his whole thought and strength.

Wooster, O., Oct. 24.

CHAS. E. THORNE.



DIGGING AND BAGGING POTATOES; ALSO SOMETHING ABOUT PHYSICAL CULTURE.

I have mentioned being at our Medina home two weeks in September. When Mrs. Root and I first got back among the "youngsters" we found almost every one of them, children and grandchildren, taking lessons in physical culture; and every morning before they got up they had to go through a lot of gymnastics that were no doubt beneficial; but to an old farmer like your humble servant it looked like a waste of ammunition, or, rather, a waste of physical strength, when there is such a variety of things to be done out in the open air that give some sort of beneficial result. I do not know how much they paid Prof. Blank for the series of lessons he gave. Somebody said they were not very expensive.

When I got back to the cabin in the woods, or, rather, the *potato-fields* in the woods, I found the cheapest way to get my potatoes to Medina was to draw them down to the dock, half a mile away, and load them on one of the big steamers. It would cost me \$50 or more to get them to the nearest railway station; and the boat line agreed to deliver them in Cleveland, only 30 miles from Medina, almost as cheap. I could not well dig my potatoes with a potato-digger, because they were ripening all along at different periods from the very earliest to the very latest; and they ripened up ready to dig only about as fast as one man could dig them. Secondly, if I used one of the improved diggers described in our book on potatoes it would be next to impossible to find help to pick them up. Up in that region almost every man, woman, and child is hard at work with their own potatoes when digging-time comes. The young man working with me took the job at 5 cts. a bushel for digging and picking up. Last year it was 4 cents; but the potatoes were so much of a failure all around me that the "going price" was 5 cents. I ordered 500 potato-boxes from Medina, and had them hauled up to my new barn. I nailed up most of them and wheeled them down to the field.

Let me say a word about nailing up potato-boxes like those you see in the pictures. The corner-pieces are made of oak; and you want to do the nailing before this oak gets seasoned; or if the oak should get seasoned before you get at the job, throw these corner pieces into water so they will get pretty well soaked before you undertake to nail. You want a hammer just right—not too light

nor too heavy. Then you want a good solid block to nail on. A cast-iron plate planed smooth is the best thing; but a smooth block sawed from a log large enough, stood on end, makes a very good nailing-table. The ends of the boxes are nailed up first; in fact, mine were nailed up in Medina with our nailing-machines. We did not nail the box all up, because it can be shipped much cheaper in the flat. After you have got your nailing-block of the right height to nail handy, and a box just the right height for a seat, you want to nail some strips on your nailing-block so as to bring the boxes exactly square. Before commencing to set up the box, take two of the long strips composing the sides. Nail them together so as to make a V-shaped trough. Now stand up on your block two of the ends the right distance apart. Place these V-shaped troughs on the corner, and nail. Now put a strip along the top—the strip you see I have hold of in my right hand. When you have got these two strips on the box, your box is all done except putting in three slats on each side and four on the bottom. Now, do not put the strip that comes next to the top where my fingers go through as I hold the box (see p. 1030) too near the upper slat; for in working rapidly in handling these boxes we want to catch hold of them anywhere; and awkward nailing will make you skin your fingers and think cross words. Another thing, for *potato*-boxes do not put in too many strips. Have all the spaces so you can almost stick your hand through. If you attempt to dig potatoes when it is a little wet you will see why. We want every bit of dirt rattled out in handling. Some of our people in Medina, in putting in the bottom would space three strips all right, then they would put in two more that made it so close that half of the bottom was almost solid; and this would catch the dirt and probably cause a good many pounds of Northern Michigan loam to be shipped down here to Medina, in burlap sacks. Every slat should have two nails at each end. One nail goes into the oak strip, and the other into the basswood strip. As I could not hire any help anywhere in our neighborhood at just the time I wanted it, I decided to bag the potatoes myself. I purchased 500 very nice burlap sacks at a Cleveland factory for 6½ cts. each, delivered in Traverse City, Mich. I first attempted to lift a box of potatoes and pour them into the sack. Now, a big stout man might do this; but I soon decided it was impossible for me to do it. I took my Daisy wheelbarrow, placed a nest of boxes as you see (Fig. 1, p. 1030); then I took another box—the one you see on top—and cut away half the bottom, putting a piece across to hold the ends of the bottom slats. This was held in the position you see by two strips of board. These go down and catch under the iron rods on the front end of the Daisy wheelbarrow. Of course they are nailed securely to the box on the top that holds the sack. The sack is hooked on to four nails driven into

the box so as to leave the heads projecting a little. A fifth nail, on the upper edge, holds the bag up tight, and is the last one to hook on and the first one to unhook. When the bag is slipped off from this fifth nail-head it is loose enough to come off from the other four. The empty sacks are crowded down in the front end of the wheelbarrow. The twine for sewing up the bags is hung over the nail, as you see. A big sacking-needle threaded with a strand of this twine is seen sticking in one side of this box. The picture above makes it all plain.

Now, a bushel of potatoes would be all right for a good stout man, as I have said before, to pour into that hopper; but it is a little too much for me. I told the boy who was digging to put half a bushel in each box. We had plenty of boxes scattered along at about the right intervals. In the picture, Fig. 1, I have in my hand an empty box. The picture does not represent (in fact) an actual potato-field. Huber took it out near the evergreens in our Medina apiary. I had every thing fixed as nearly as I could as it was in the Michigan field. Now, suppose the box I have in my hand held half a bushel of potatoes. It is no task at all to take it up by one hand; and it is not very much of a task to swing it like a pendulum so that it comes up just right to get my left hand under it. I let it drop easily on the hopper so as to pour potatoes out of one corner of the box. To prevent bruising as much as possible I placed two or three empty sacks, folded up on the front of the wheelbarrow, so when the potatoes dropped down, instead of going to the bottom of the sack they bumped on this cushion of bags. Now, even swinging half a bushel of potatoes up like this a hundred times a day is quite a little exercise. It is virtually lifting 50 bushels of potatoes as high as your head; and at first I began to get tired out before noon. But I had another of my happy surprises in finding that each day I worked at it the task was easier and pleasanter, until I could sack potatoes clear up till the noon hour, and then almost feel sorry that I had to quit work to go to dinner. But I had such a grand appetite for dinner — yes, for breakfast and supper too, while working with those potatoes that it was actually *fun to live*. Out there in the woods we had not only apples, peaches, pears, plums, watermelons, muskmelons, etc., but beautiful potatoes and the finest fish in the world, with plenty of milk and eggs from one of our nearest neighbors. Working in the open air in my shirtsleeves, I wheeled my outfit along from one potato-box to the next, and left my bag of potatoes standing up in the field until the wagon came around for them. As each box was emptied it was swung over right close to the two rows Earl was digging; so one set of boxes clear through the field answered for the whole job. I do not know that I ever did any work in my life that I enjoyed more than sacking that 1000 bushels of potatoes. By the time we got through, however, we

had some bad rainy weather. Yes, it *snowed* a little the last day; but as we had to have them ready for the steamer we kept right on during a brief snowstorm. I am sure I do not know how farmers generally manage when they have potatoes that are to be shipped in sacks; but I believe my rig that was made in about 15 minutes is about as handy as can be readily gotten up. The potatoes were usually allowed to lie on the ground until they were dry enough so there would not be any danger of being bagged up too wet. They came down here to Medina in beautiful condition with the exception of a few that were put up during that snowstorm in September. These were bagged a little too wet, and they were bruised so we had to empty them out and wash some of them before they could be put away in the cellar. Our potato-book tells about digging potatoes with a machine so they can be put in boxes and set in the cellar for two or three cents a bushel, covering the cost of the whole operation. This can be done where you have a large field all ripening at once; but where many varieties are grown for seed (you see we have about 17 in all) this is hardly practicable.

In sacking all the potatoes myself I had an excellent opportunity to inspect personally, and see that every thing was put up and labeled true to name. Besides this, my young friend Earl got to be quite an expert in detecting a single hill that was not true to name; and this reminds me that we were a good deal puzzled, while digging, to find now and then a hill of potatoes out of place. I knew our seed was carefully examined when planted and when cutting; and I knew the boys were careful to avoid having even one potato out of place in planting. The solution of the mystery was this: All of our first cultivating was done with the weeder. We ran it both lengthwise and crosswise of the potatoes before they were up and when just coming up. When running crosswise of the rows, occasionally a potato caught on the fingers of the weeder and was dragged over among other kinds. Hereafter I shall not run the weeders crosswise of the rows where there are different varieties in the field. We soon learned, however, from studying the peculiarities of each variety, as we came to it, to detect any stray hill by sight.

Now, then, in conclusion I would recommend, in place of paying a teacher to give you instructions in physical culture, to *dig potatoes* or do some similar work to develop your muscles. You will get paid for the work, and I am sure you will find it much pleasanter out in the open air under God's blue sky, and with refreshing breezes all around you. During the month I was handling potatoes my muscles increased in size so that a good deal of my clothing was too tight. I increased in weight from 115 to 126. Of course, one's occupation may be such that he can not well take the time to take this kind of open-air exercise — that is, every day in the year; but I would heartily

recommend it in place of any gymnastics to be taken indoors where it can be managed.

The objection has been made that certain kinds of exercise do not develop all the muscles of the body; and it has been said that, when one gets an education, he wants it, at least to a certain extent, to be a general education, that he may become a scholar, rounded out and symmetrically developed. In the same way the teacher of physical culture aims to bring, sooner or later, all the muscles of the body into play. Well, I may be wrong; but my impression is that the varied occupations of farmwork each day, being more or less different from that of the day before, will eventually round out and develop the whole physical man; and if this same farmer takes and reads a reasonable number of the various periodicals of the day he may become "rounded out" mentally as well as physically.

I forgot to mention that I had shipping-tags in my pocket, with the name of each variety plainly printed on it. One of these tags was placed inside of the bag, and the other sewed to the outside at the time they were sewed up.

Special Notices by A. I. Root.

"EARLIEST IN THE WORLD TOMATOES," ETC.

The earliest tomato we know of is the Earliest in the World. Funny, isn't it? That is, it is the earliest smooth tomato. It is not a very large-sized one; but what we do not get in size we get in quantity. Now I wish that the friends who have been testing all the extra-early tomatoes would tell me whether they have found any other tomato as early and as smooth and of a little larger size than the Earliest in the World. There is one other objection besides its small size. We can not buy any seed of the originator for less than 50 cts per oz. Our own crop of seeds last year was a failure owing to the cold weather, and — I am almost ashamed to say it, but we let the neighbors' chickens get them instead of gathering them at the proper time and saving them for seed. Of course we did not know the seed was going to be so "awful" scarce and high.

GARDEN SEEDS FOR 1903.

We shall have prices out, probably, in January. Beans will still be very high—probably higher than last year. We have quite a stock on hand, however, that we shall furnish at old prices as long as they last. This refers particularly to Prizewinner, White Kidney, York State Marrow, and Banner Field beans. Beet seeds of all kinds will be higher; also carrots. Cucumber and all the melon family are away up. This is in consequence of the unusual cold and unfavorable season for growing melons. At the present writing melons will be about twice what they were last year; and there is talk that cucumbers will be *three or four times* as much. At present writing, Dec. 15, we could not offer cucumber seed for less than \$2.00 per lb.; oz., 15. There is nothing else that we know of that is going to be so scarce and high priced as cucumber seed. Our onion seed was grown especially for us; and while our stock lasts it will be the same as last year. Squashes will be considerably higher; turnips about the same; field peas considerably higher; sweet corn of all kinds will be higher. Every thing else in our price list will be at last season's catalog prices. We have quite a few seeds of many kinds left over from last year that will grow about as well as new seeds—such as celery, melons, etc., that we offer at old prices as long as they last.

Our Advertisers.

The Cyphers Incubator Co., of Buffalo, N. Y., desire us to announce that the loss they suffered by fire on

the night of Dec. 6 will not prevent them from filling promptly and satisfactorily all orders as usual. The fire was confined to one of their warehouses, a frame structure. Their main works were entirely uninjured.

Our readers will please notice that the special clubbing prices named by C. M. Goodspeed, in his various ads this issue, supersede all former lists. Do not fail to order early. These offers may be withdrawn. Another reason is that publishers are very busy about Jan. 1st, and you will get quicker service by ordering at once.

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Bee-keepers!

We need your orders, and you need our goods, so let's trade. We have the very best goods, the largest stock in the State, the best place in the U. S. to ship from, and the very lowest prices consistent with first-class goods. Write to us and tell us your wants.

C. M. SCOTT & CO., INDIANAPOLIS, INDIANA.
1004 East Washington Street.

CRUSHED OYSTER SHELLS. 100 lbs., 49c; 200 lbs., 95c; Mica Crystal Grit, 100 lbs., 57c; 200 lbs., \$1.07, or 100 lbs. each, \$1. Poultry need both. Order now. Catalog free. **WISE & CO., Butler, Ohio.**

TRY Phacelia Tanacetifolia. One ounce, 25 cents, in January, if ordered early, any quantity.
O. LUCHDORFF, Visalia, California.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHNER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Several thousand pounds comb honey in Danzenbaker 4x5 sections. Shall commence filling orders in August. **WM. MORRIS, Las Animas, Col.**

Grand Clubbing Offers !

| | | |
|--------------------------|-----------|---------|
| Cleanings in Bee Culture | - | \$ 1 00 |
| Review of Reviews | - - | 2 50 |
| Success | - - - - - | 1 00 |
| Woman's Home Companion | | 1 00 |
| Regular Price | | 5 50 |
| My Club Price | - - | 3 50 |

| | | |
|------------------------------------|---------|---------|
| Cleanings in Bee Culture | - | \$ 1 00 |
| Leslie's Monthly with Art Calendar | | 1 00 |
| Everybody's Magazine | - - | 1 00 |
| World's Work | - - - - | 3 00 |
| Regular Price | | 6 00 |
| My Club Price | - - | 3 50 |

SUBSTITUTIONS.

In Place of Either REVIEW OF REVIEWS or WORLD'S WORK may be substituted any of the following, either new or renewal, except Public Opinion, which must be new.

| | |
|-----------------------|--------------|
| Trained Nurse |\$ 2 00 |
| World To-Day |3 00 |
| Great Round World |2 00 |
| Lippincott's Magazine |2 50 |
| New England Magazine |3 00 |
| Public Opinion (new) |3 00 |
| Chautauquan |2 00 |
| World's Work |3 00 |
| Art Interchange |4 00 |
| Country Life |3 00 |
| Popular Science News |2 00 |
| Current Literature |3 00 |
| Toilettes |2 10 |
| Independent |2 00 |

In Place of Woman's Home Companion in the above offer may be substituted any one of the following, or any one of these may be added to any Success combination by adding 50c.

| | |
|--------------------------------|--------------|
| Leslie's Monthly—no calendar |\$ 1 00 |
| Little Chronicle |1 50 |
| Good Housekeeping |1 00 |
| Recreation (new) |1 00 |
| Campbell's Illustrated Journal |1 00 |
| Young's Magazine |1 00 |
| Farm, Field, and Fireside |1 00 |
| Four O'clock |1 00 |
| Farm Poultry |1 00 |
| Practical Farmer |1 00 |
| Fern Bulletin |1 00 |
| Farm Journal (5 years) |1 00 |
| Household |1 00 |
| Era |1 00 |
| Birds and Nature |1 50 |
| National Magazine |1 00 |

| | |
|------------------------------|-----------|
| Hints (for Entertainments) |1 00 |
| Youth |1 00 |
| Patfinder |1 00 |
| Electrical Age |1 00 |
| American Fancier |1 00 |
| Buffalo Weekly Horse Gazette |1 00 |
| Ad. Writer |1 00 |
| Vick's Magazine (3 years) |1 00 |

In Place of Leslie's Magazine offered above with Gleanings, World's Work, and Everybody's Magazine, may be substituted any one of the above list except Birds and Nature, and also the following additional list may any one of them be substituted for Leslie's in any offer where Everybody's is taken.

| | |
|------------------------------|--------------|
| Cosmopolitan |\$ 1 00 |
| Arena |2 00 |
| Pilgrim |1 00 |
| Table Talk |1 00 |
| Cassino's Little Folks (new) |1 00 |
| American Boy |1 00 |
| Mind |2 00 |
| Recreation |1 00 |
| What to Eat |1 00 |
| Special Crops |75 |

On these four periodicals we offer a very liberal commission to bona-fide agents, postmasters, and publishers; also prizes to the value of \$330.

| | |
|--|--------------|
| McClure's Magazine may be added to any combination for |\$ 1 00 |
| Saturday Evening Post may be added to any combination for |1 00 |
| Ladies' Home Journal may be added to any combination for |1 00 |
| Youth's Companion (with Calendar) added to any combination for |1 75 |

Subscriptions may be new or renewal, as desired, except where new is specified. Club offers may go to different people and different addresses.

Our Leaders

| | |
|---|-------------|
| Gleanings, one year |\$1.00 |
| Three Art Calendars in one—16x12 inches |50 |
| Leslie's Popular Monthly, Nov. and Dec., 1902 |17 |
| Leslie's Popular Monthly—all of 1903 |1.00 |
| Vick's Magazine, all of 1903 |50 |
| Woman's Home Companion, all of 1903 |1.00 |
| Good Housekeeping, all of 1903 |1.00 |
| Total |5.17 |
| We give you all the above for |2.60 |

Gleanings, Wool Markets and Sheep, Dairy and Creamery, Ohio Farmer, Commercial Poultry } 1.60

C. M. Goodspeed, Lock Box 731, Skaneateles, N. Y.
Be Careful to Name the Box.

Special Offer

All Previous Offers Withdrawn!

Below we've arranged several tables for forming combinations; start with Gleanings as a base at One Dollar, and then make such additions from the tables as you desire, adding for each periodical the price of its class. For instance, Gleanings and one magazine from the Dollar class and one from the Fifty-cent class would cost you \$2.50. It is not to be understood that this class price is the price of the publication. It is not, except in a few cases, and no orders will be taken in that way. It is simply telling you how much to add to One Dollar to get the combination price. All offers are for a full year, and call for cash with order.

1. Gleanings in Bee Culture, 1 yr., \$1.
 2. If you want only one additional paper, add the price found in the top of the column in which that paper appears.
 3. If you want several papers in addition to Gleanings, each one may be had at the price named at top of the column. For instance: Gleanings, S. S. Times, and Rural New Yorker, will cost you \$2.25.
 4. You may select as many papers from each column as you wish.
 5. Every order sent us must include Gleanings.
 6. Foreign postage extra.
 7. We will send all papers to one or separate addresses, as desired.
- CONDITIONS**—Offers are subject to withdrawal at any time.
- Pen-and-ink price quoted on any list of papers you may wish, either foreign or domestic.

Fifty-two page-catalog for 1903 will be ready to mail for the asking by Nov. 20. Be sure to tell us where you saw this ad. If you do tell us that you saw it in Gleanings we will send you a nice package of flower or vegetable seeds free, but our selection.

* No. 1==25c.

Poultry Keeper,
Amer. P'try Advocate,
Reliable P'try Journal,
Farm Home,
Vick's Magazine,
Conkey's Home Journal,
Hints,
Young's Magazine,
Good Health Clinic,
Woman's Work,
Farm Journal,
Ladies' World.

* No. 2==40c.

Ohio Farmer,
Michigan Farmer,
Farm and Fireside,
Farm and Home,
McCall's Magazine,
Agricultural Epitome,
Sabbath Reading,
Housewife,
Housekeeper,
Black Cat,
Young People's Weekly,
Book News,
Cincinnati Enquirer.

* No. 3==50c.

Farm Poultry,
American Fancier,
Normal Instructor,
Mirror and Farmer,
Era,
Household,
National Magazine,
Electrical Age,
Pathfinder,
Woman's Home Comp.,
Every Month,
Practical Farmer,
Farm, Field, & Fireside

* No. 4==75c.

Tri-weekly World,
New York Witness,
Inter Ocean,
New York Tribune,
Tribune Farmer,
Hoard's Dairyman,
American Agriculturist,

Good Housekeeping,
Recreation,
Four O'clock,
Leslie's Monthly—with
Cosmopolitan, [calendar
Everybody's Magazine,
Success,
Camera,
Book-keeper,
American Boy,
Rural New Yorker,
National Stockman,
Sunday-School Times,
Babyhood,
Family Herald and Star
Christian Uplook,
Dietic & Hyg. Gazette,
Guntton's Magazine,
Little Chronicle.

* No. 5==1.00.

Arena,
Etude,
McClure's Magazine,
Munsey's Magazine,
Ladies' Home Journal,
Designer,
Saturday Evening Post,
Cassell's Magazine,
Photo-American,
Country Gentleman [not
Quiver, [in arrears,
American Gardening,
Tri-weekly Tribune,
Amateur Sportsman.

* No. 6==1.50.

World To-Day,
Horse Review,
Donahoe's Magazine,
Chautauquan,
Great Round World,
Bookman,
World's Work,
Country Life.

* No. 7==2.50.

Scientific American,
Outlook,
St. Nicholas,
Leslie's Illust. Weekly,
Public Opinion.

SPECIAL OFFERS.

| | |
|---|---------|
| Gleanings in Bee Culture and Century..... | \$ 4 00 |
| Gleanings in Bee Culture and Atlantic Monthly..... | 4 00 |
| Gleanings in Bee Culture and Judge..... | 4 50 |
| Gleanings in Bee Culture and Collier's Weekly..... | 4 75 |
| Gleanings in Bee Culture and Harper's Magazine..... | 1 00 |
| Gleanings in Bee Culture and a new sub. to Churchman..... | 3 50 |
| Gleanings and Frank Leslie's Popular Monthly (Nov. and Dec. this year and all 1903) and Art Calendar..... | 1 50 |

* These prices are not the publishers' prices for these papers, but they are our special reduced prices when taken in connection with Gleanings. In many cases they are just one-half the regular rate.

C. M. GOODSPEED, Skaneateles, New York

Lock Box 731.

OUR GRAND CLUBBING OFFERS

BY SPECIAL ARRANGEMENTS with the publisher of GLEANINGS and other publishers interested, we are able to offer GLEANINGS subscribers some very attractive combinations. Subscriptions to any of the periodicals named may be either new or renewal, except in a very few cases where new is specified. Subscriptions may begin at any time, and are always for a full year. The different periodicals in the combination may all go to one person or they may go to different persons, to the same address or to different addresses. To help informing clubs, we have arranged the following classes of publications, in each case giving the publisher's regular subscription price.

CLASS A

| | | | |
|----------------------------------|--------|---------------------------------|--------|
| GLEANINGS | \$1 00 | Little Chronicle | \$1 50 |
| Woman's Home Companion..... | 1 00 | Electrical Age..... | 1 00 |
| Household..... | 1 00 | Farm Poultry..... | 1 00 |
| National Magazine..... | 1 00 | American Fancier..... | 1 00 |
| Leslie's Monthly, with calendar | 1 00 | Ohio Farmer..... | 1 00 |
| Era..... | 1 00 | Michigan Farmer..... | 1 00 |
| Campbell's Illust'd Journal..... | 1 00 | Practical Farmer..... | 1 00 |
| Recreation (new) | 1 00 | Buffalo Weekly Horse Gazette... | 1 00 |
| Ledger Monthly..... | 1 00 | Farm Journal (5 years) | 1 00 |
| Hints | 1 00 | Fern Bulletin | 1 00 |
| Young's Magazine..... | 1 00 | Vick's Magazine (3 years)..... | 1 00 |
| Youth..... | 1 00 | Ad Writer | 1 00 |

CLASS B

| | | | |
|-----------------------|------|---------------------------|------|
| Chautauquan | 2 00 | Lippincott's..... | 2 50 |
| Birds and Nature..... | 2 00 | Arena..... | 2 00 |
| Toilettes | 2 00 | Popular Science News..... | 2 00 |
| World To-Day | 3 00 | Trained Nurse..... | 2 00 |

CLASS C

| | | | |
|-------------------------|----|----------------------------|----|
| Poultry-Keeper | 50 | Conkey's Home Journal..... | 50 |
| Good Health Clinic..... | 50 | Commercial Poultry..... | 50 |
| Woman's Work | 50 | Vick's Magazine..... | 50 |
| Good Literature..... | 35 | Ladies' World..... | 40 |

GLEANINGS WITH

| | | | |
|-----------------------|------|---------------------------------|------|
| One of Class A..... | 1 25 | One of Class A, one of Class B. | 2 75 |
| Two of Class A | 1 75 | Two of Class A, one of Class B. | 3 25 |
| Three of Class A..... | 2 25 | One of Class A, one of Class C. | 1 50 |
| One of Class B..... | 2 25 | Two of Class A, one of Class C. | 2 00 |
| Two of Class B..... | | | 3 75 |

OTHER ATTRACTIVE OFFERS

| | | | |
|---|---------|--|------|
| Gleanings and Country Gentleman..... | \$ 1 50 | Gleanings and Century..... | 4 00 |
| Gleanings, Vick's Magazine, Woman's
Home Compan., Good House keeping | 1 70 | Gleanings and St. Nicholas..... | 3 00 |
| Gleanings, Everybody's Magazine, Cos-
mopolitan, Youth's Companion (Nov.
and Dec., 1902, and art calendar given
to new subscribers in addition to the
full year of 1903)..... | 3 50 | Gleanings and Scribner's Magazine..... | 3 30 |
| If the Youth's Companion is not wanted
deduct..... | 1 75 | Gleanings, American Mother, Woman's
Work, and McCall's..... | 1 50 |
| | | Gleanings and McCall's Magazine..... | 90 |
| | | Gleanings and Great Round World..... | 2 00 |
| | | Gleanings, Youth, National Magazine..... | 1 60 |
| | | Gleanings, Era, Everybody's, and Cos-
mopolitan | 2 25 |

Catalog containing clubbing rates on over 2000 periodicals, hundreds of combinations similar to these named here, together with liberal cash and periodical prizes, sent on receipt of a postal-card request, after Nov. 20. In ordering, be sure to name Gleanings, and address

C. M. Goodspeed, L. Box 731, Skaneateles, New York.

Gleanings May be Added to Any Combination on This Page by Adding 50 cts. to the Price.

The periodicals are all mailed direct to the subscriber by the publisher, and in all respects you get the same service you would if you sent the full regular price to them, and at a saving of nearly half the cost of your reading-matter.

Pen-and-ink price quoted on any list of papers you wish, either foreign or domestic.

Fifty-two page catalog for 1903 will be ready to mail for the asking by Nov. 20th. Be sure to tell us where you saw this ad. If you do tell us that you saw it in Gleanings we will send you a nice package of flower or vegetable seeds absolutely free, but of our own selection.

Success Offers.

| | |
|--|---------|
| Success and Leslie's Popular Monthly..... | \$ 1 25 |
| Success, Everybody's Magazine, Leslie's Popular Monthly..... | 2 00 |
| [In place of either Leslie's or Everybody's Magazine in the above offer may be substituted Woman's Home Companion, Birds and Nature, Good Housekeeping, or any magazine in Class A on the opposite page.] | |
| Success and Review of Reviews..... | 2 50 |
| Success, World's Work, Review of Reviews | 4 00 |
| Success, Public Opinion (new), Current Literature | 4 00 |
| [In place of Review of Reviews, World's Work, Public Opinion, or Current Literature, may be substituted Country Life, New England Magazine, Lippincott's Independent, Art Interchange, or any periodical in Class B opposite.] | |
| Success, Leslie's Monthly, Review of Reviews, and Everybody's..... | 3 50 |
| [This combination also is subject to the same substitution.] | |

Everybody's Offers.

| | |
|---|---------|
| Everybody's and Cosmopolitan..... | \$ 1 25 |
| Everybody's, Cosmopolitan, and Success .. | 2 00 |
| [In place of Cosmopolitan or Success in Everybody's offers may be substituted American Boy, Arena, Mind, Pilgrim, Recreation, Table Talk, Cassino's Little Folks (new), or any periodical in Class A on the opposite page] | |
| Everybody's, Cosmopolitan World's Work..... | 3 00 |
| Everybody's, Public Opinion (new), Leslie's Magazine..... | 3 00 |
| [In place of Public Opinion (new), or World's Works may be substituted either the Independent, Art Interchange, Lippincott's, New England Magazine, Current Literature, Country Life, or any magazine in Class B on opposite page.] | |
| Everybody's, Cosmopolitan, Book News | 1 50 |
| Everybody's, Poultry-keeper, Recreation..... | 1 50 |
| Cosmopolitan, Woman's Home Companion, and Ladies' World..... | 1 50 |
| Poultry Keeper, a good first-class poultry paper costing 50 cts., and is never sold for less we are able to add to any combination on this page for an extra..... | 25 |

| | |
|--|------|
| McClure's Magazine may be added to any combination for..... | 1 00 |
| Saturday Evening Post may be added to any combination for | 1 00 |
| Ladies' Home Journal may be added to any combination for | 1 00 |
| Youth's Companion may be added to any combination for..... | 1 75 |
| [On these four periodicals we offer a very liberal commission to bona-fide agents, postmasters, and publishers; also prizes to the value of \$300.00.] | |

C. M. GOODSPEED,

Lock Box 731.

Skaneateles,

New York.

The Best of Everything



THE through train service of the Chicago & North-Western Railway from Chicago to Omaha, Denver and the Pacific Coast on the west, the Black Hills and Dakotas to the northwest and to Milwaukee, Madison, St. Paul, Minneapolis and Duluth on the north, is as nearly perfect as modern and skillful management can make it.

The Overland Limited, a magnificent electric-lighted train, less than three days Chicago to San Francisco, daily.

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H. R. McCULLOUGH, 3d Vice-President
W. B. KNISKERN, Passenger Traffic Manager.
CHICAGO, ILL.

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The only atlas with railroad systems in colors. It embraces all the good points of other Atlases, and contains many additional features of its own. Send for sample map and information.

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We have five different yards, 5 to 20 miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albino are bred for business. You can send in your orders at following prices the rest of this year: Tested, \$1.50 each; \$8.00 for six; \$15.00 per doz. Untested, 75c each; \$4.25 for six, or \$8.00 per doz. Fine breeders, \$5.00 each. Safe arrival guaranteed. Write for free catalog. Tells how to raise queens and keep bees for profit. The Jennie Atchley Co., Beeville, Bee Co., Tex.

Nursery Stock of All Kinds!

Complete line of TREES, VINES, and PLANTS; hardy and true to name. Write for prices before placing orders.

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The Ideal Piano



Built anticipating the demand of those satisfied with nothing but the best and looking for a piano of the **Highest Artistic Creation**

Are you considering the purchase of a piano? Our proposition will prove more entertaining than any you have had. *Catalog and full information free on application.*

THE PACKARD COMPANY
P. O. Box F Fort Wayne, Indiana

NOTHING AS GOOD ADVERTISED ANYWHERE.

Sewing Machines

\$7.25 TO \$26.50 Shipped on approval

anywhere in U.S. No money in advance. All kinds, all styles; direct from factories. Avoiding salesmen's expenses and dealers or agents exorbitant profits saves you from \$10 to \$45. Estab. 1885. 250,000 sold. Testimonials from every state. Reference: First Nat'l Bank, Chicago. Send for big illustrated catalogue showing all styles and samples of work. **CASH BUYER'S UNION, Dept. K 345 Chicago.**



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Root's Supplies

at Catalog Prices.

Chaff Hives.
Winter-cases. For
Chaff Division-boards. Winter.
Hill Devices, etc.

F. H. Farmer, Boston, Mass.
182 Friend St. Up one flight.

Chas. Israel & Brothers

486-490 Canal St., cor. Watt St., N. Y.

Honey and Beeswax

Liberal Advances Made on Consignments Wholesale Dealers and Commission Merchants. Established 1875.

GET ACQUAINTED

with the BEE-KEEPERS' REVIEW. You can do it now at very little cost, and you will be surprised at the amount of valuable information and helpful ideas that are packed within its pages. For \$1.00 you will get all of the issues for 1902 (except the January issue, the supply of which is now exhausted, but some other excellent number will be sent in its place) and the REVIEW for all of next year, thus giving you the issues of two years for only \$1.00. Add \$1.00 more to the order (making \$2.00 in all) and your order will be booked for a queen of the Superior Stock to be sent next spring.

W. Z. HUTCHINSON,

=

=

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50 CENTS

That's all it costs for a year's reading of the

Rocky Mountain Bee Journal.

Besides reflecting all the doings and happenings and the latest methods and appliances that pertain to bee-keeping in the great Rocky Mountain alfalfa regions, we talk up co-operation and organization as no other bee-journal has ever undertaken to do. This journal will give you new ideas, and help you whether you own one colony or 500. You need it. The 10-cent trial offer is withdrawn. Samples free.

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For a little work you can easily earn watches, clocks, silver, games, books, dolls, knives, guns, cameras, guns, etc. Don't miss our *new* plan and special premium list. Write to-day to

Howard Co., 516 Masonic Temple, Chicago.

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Cents

WITH names and addresses of FIVE FARMERS brings the *best paper on earth* for the money 1 year on trial. Send now. Samp. copy free. Modern Farmer, Amer. Poultry Journal, and Gleanings, all 1 year for \$1. Modern Farmer, St. Joseph, Mo.

POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts. if you mention Gleanings (reg. price, 50 cts) Inland Poultry Journal, Indianapolis, Indiana.

Envelopes!

Printed to order, \$1 per 1000; other printing cheap. Howard Co., 516 Masonic Temple, Chicago.

The Fred W. Muth Co.

—Front & Walnut Streets—

CINCINNATI, OHIO.

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Muth's 1-pound square with patent glass stoppers and steel spring are the best. ~~\$2.00~~ Only \$5.50 per gross. Send for catalog of bee-supplies. ~~\$2.00~~ Special inducements. ~~\$2.00~~

HONEY QUEENS!

Laws' Leather-colored Queens.

Laws' Improved Golden Queens.

Laws' Holy Land Queens.

Laws' queens are doing business in every State in the Union and in many foreign countries.

The demand for Laws' queens has doubled any previous season's sales.

Laws' queens and bees are putting up a large share of the honey now sold.

Laws' stock is being sold for breeders all over the world. Why? Because it is the best to be had.

Remember! That I have a larger stock than ever; that I can send you a queen any month in the year and guarantee safe delivery; that I have many fine breeders on hand. Price, \$3.00 each. Tested, each, \$1.25; five for \$6.00. Prices reduced after March 15. Send for circular.

W. H. Laws, Beeville, Texas

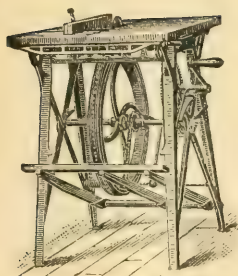


PAGE

IF QUALITY

and utility are considered, we will compete on price, and PAGE FENCE will pretty sure y win.

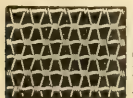
Page Woven Wire Fence Co., Box S, Adrian, Michigan.



BARNES' Hand and Foot Power Machinery.

This cut represents our combined circular saw which is made for bee-keeper's use in the construction of their hives sections, boxes, etc., etc.

Machines on Trial.
Send for illustrated catalog and prices. Address
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Rockford, Ill.



FENCE! STRONGEST MADE. Bull Strong, Chicken Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO.
Box 101, Winchester, Indiana, U. S. A.

1200 FERRETS. All sizes; some trained; first class stock. New price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**



POULTRY PAPER, illust'd, 20 pages, 25 cents per year. 4 months' trial 10 cents. Sample free. 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. Catalogue of poultry books free. **Poultry Advocate, Syracuse, N. Y.**

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—A man to work at bees in Cuba, commencing April 1st. But little experience necessary. All questions gladly answered. Write at once to
F. L. POWERS, Artemisa, Cuba, W. I.

WANTED.—A position as apiarist for 1903, south or west preferred; 33 years' experience. Correspondence solicited. I have a one-half interest in a fine bearing orange-grove in Florida that I will trade for bees located in some good alfalfa country. Who wants it?
M. W. SHEPHERD, Wellington, Ohio.

WANTED.—Second hand forge and anvil, give price.
O. W. JEFFERSON Pittsford, Mich. Box 135.

WANTED.—To know if you wish to trade some bees and some cash for black level Dakota wheat land.
D. E. L'HOMMEDIEU, Colo. Story Co., Iowa.

WANTED.—To sell a 5-acre bee-ranch, 4-room house, barn, good well of water, 110 stands of bees, 100 extra hives, 100 comb-honey supers; every thing pertaining to a first-class apiary, just outside the city limits of Los Angeles with 125,000 inhabitants; fine place for bees. The hills are covered with sage, and oranges in the valley; a bargain for some one.
J. H. MILLER, Station A, Los Angeles, Cal.

WANTED.—To sell ten Root AD6 Danz. hives in flat, \$8.00. small \$15.00 cider-press, new, \$7.50; f o. b.
DR. S. B. JACKSON, Idlewood, Alleg. Co., Pa.

WANTED.—To sell a Victor talking-machine, in use one year, practically as good as new, retail price \$28; one dozen 10-inch records, \$10; three dozen 7-inch records, \$15. Will take \$32 for all.
L. D. ALLEN, New Era, Mich.

WANTED.—To sell ginseng seed at \$5.00 per ounce.
A. P. YOUNG, Cave City, Ky.

WANTED.—To sell 10 bbls. White Bliss Triumph potatoes—A little sunburned or green but all right for seed—not sorted, \$2.00 per barrel: will ship in the spring.
J. W. BITTENBENDER, Knoxville, Iowa.

WANTED.—To sell at a bargain, 40 colonies of bees in frame hives, in southwestern Georgia. Hives and bees in good condition.
H. M. CARR, Cranfills Gap, Texas.

WANTED.—To exchange a large list of second-hand goods, as good as new, for foundation, mill, and extracted honey. Address
QUIRIN THE QUEEN-BREEDER, Parkertown, Ohio.

WANTED.—Seven cents for sample package of our famous honey and menthol cough-drops.
R. H. SMITH, St. Thomas, Ontario, Canada.

WANTED.—A young man with a fair knowledge of apiculture to do general work on a small farm with an apiary of 150 stands.
JOHN S. McCLURE, Las Cruces, N. M.

WANTED.—To exchange second-hand 60-lb. cans, boxed, good as new, at 40 cts. per case, for honey at market price.
G. L. BUCHANAN, Holliday's Cove, West Virginia.

WANTED.—To sell for \$1200 cash, 325 hives of bees in 8 and 10 frame two-story Langstroth hives; four locations, with honey-houses bee-sheds, extractors, tanks, 50 empty hives, foundation-mill, etc. Sales of honey and beeswax this year, \$1700; irrigated country; no failures.
WM. G. HEWES, Bakersfield, Cal.

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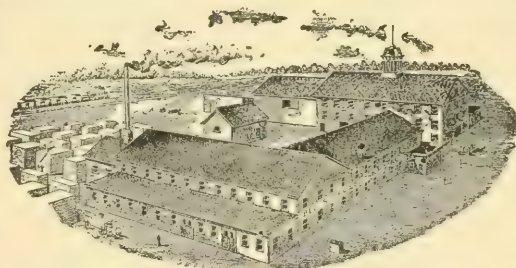
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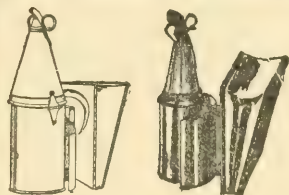
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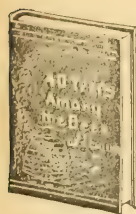
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